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DOUGLAS-FIR BARK BEETLE INFESTATION AND PROPOSED PLAN AIMED AT ITS CONTROL NORTH IDAHO AND WESTERN MONTANA

Progress Report of Task Force Representing -
Timber Industry
Bureau of Entomology and Plant Quarantine
and
U. S. Forest Service
of the
U. S. Department of Agriculture
January 1953
Missoula, Montana

DOUGLAS-FIR BARK BEETLE INFESTATION
AND PROPOSED PLAN AIMED AT ITS CONTROL
North Idaho and Western Montana
Missoula, Montana
January 1953

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DOUGLAS-FIR BARK BEETLE INFESTATION AND PROPOSED PLAN AIMED AT ITS CONTROL

I. INTRODUCTION

Public and private foresters of Idaho and Montana consider the Douglas-fir beetle as the most destructive insect of the Northern Rocky Mountain Region. Abnormal losses have occurred in Douglas-fir merchantable timber stands over a long period of years, but prior to 1945 little attention was given to the large timber volumes lost because of the low economic importance of the species. Today Douglas-fir is the most heavily used timber species on the national forests in Region One and the demand for its products is increasing. With recent epidemic outbreaks of the Douglas-fir beetle becoming more serious, a control and salvage program is now vital in protecting and utilizing the region's Douglas-fir sawtimber stands. Without such a program severe losses are inevitable.

The contents of this report have been based mainly upon the findings of the following Douglas-fir beetle surveys conducted in 1952:

1. An extensive aerial survey of all forested areas in the region in which areas of red-topped Douglas-fir trees were mapped.

2. Ground reconnaissance surveys followed the aerial mapping. Infestation data was obtained from representative areas to arrive at an infestation figure for each forest unit.

3. Appraisal and reconnaissance surveys were made in selected compartments on six national forests. The primary purpose of the surveys was to gather trend and volume data on insect-killed timber within specific logging units for use in preparation of an action program for control and salvage.

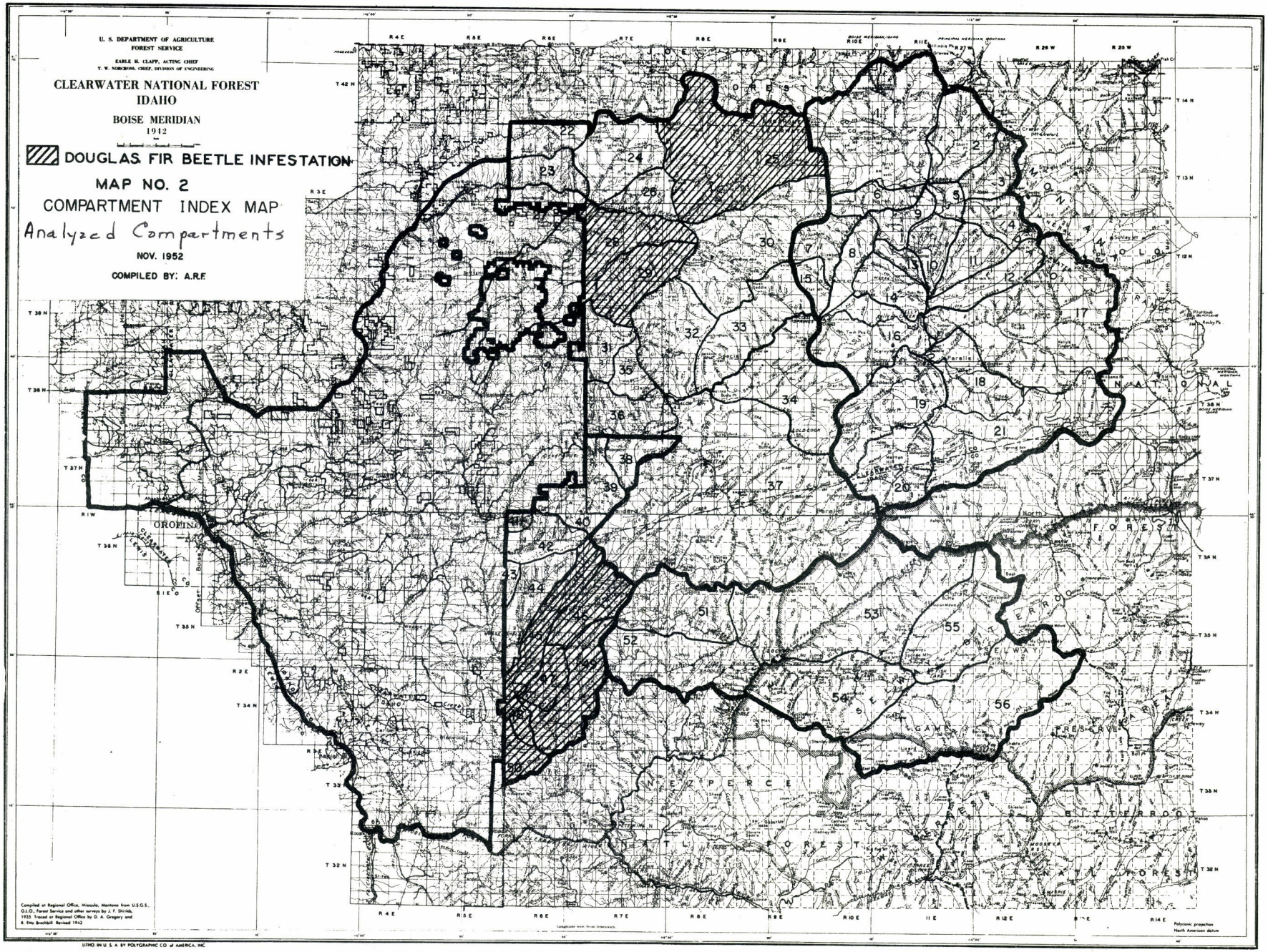
Attached Map No. 1 shows the areas of infestation in the region as determined from the aerial surveys. Maps No. 2 through 7 show the compartments analyzed on each of the six forests.

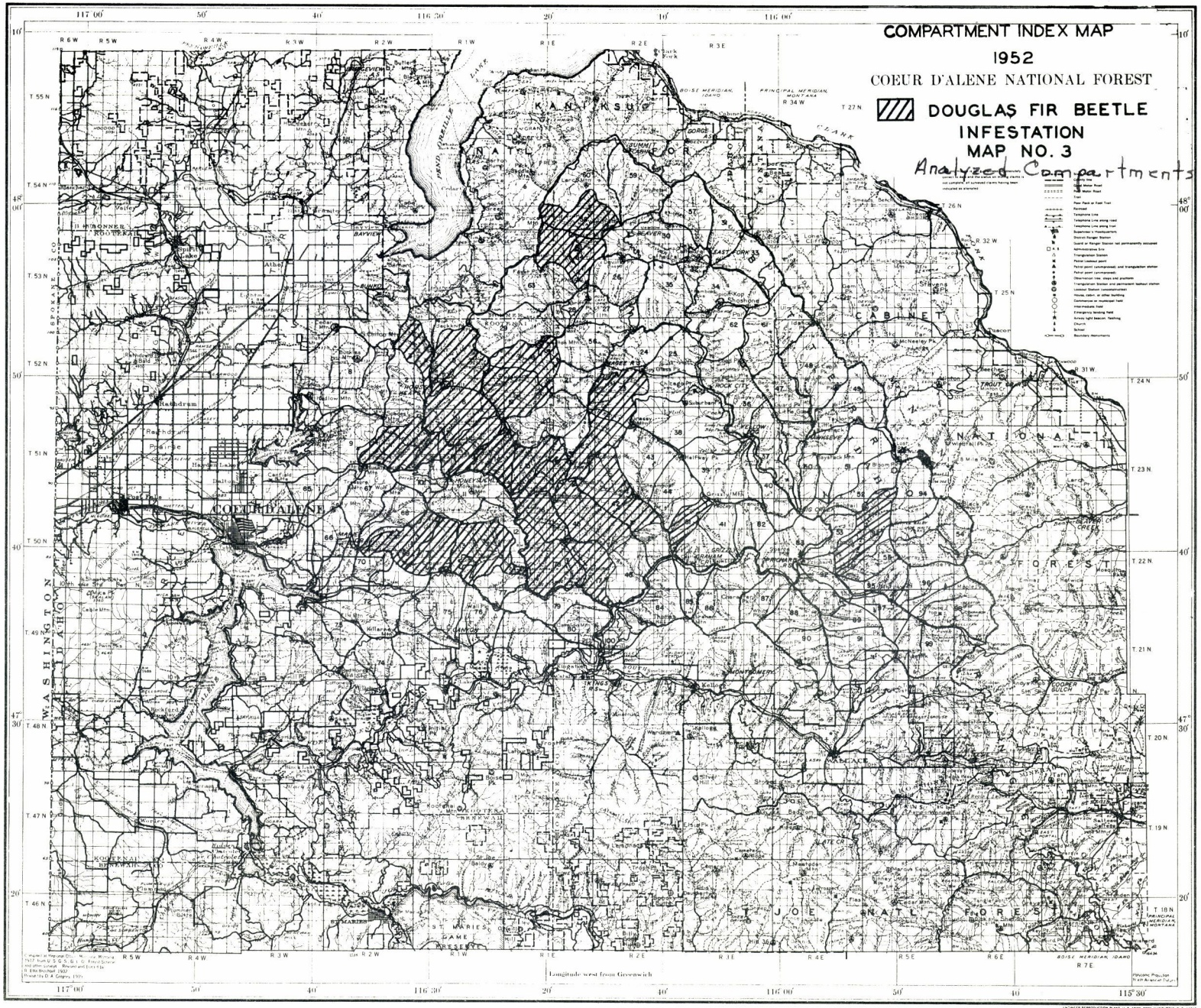
DOUGLAS FIR BEETLE INFESTATION
AERIAL SURVEY - 1952
MAP NO. I

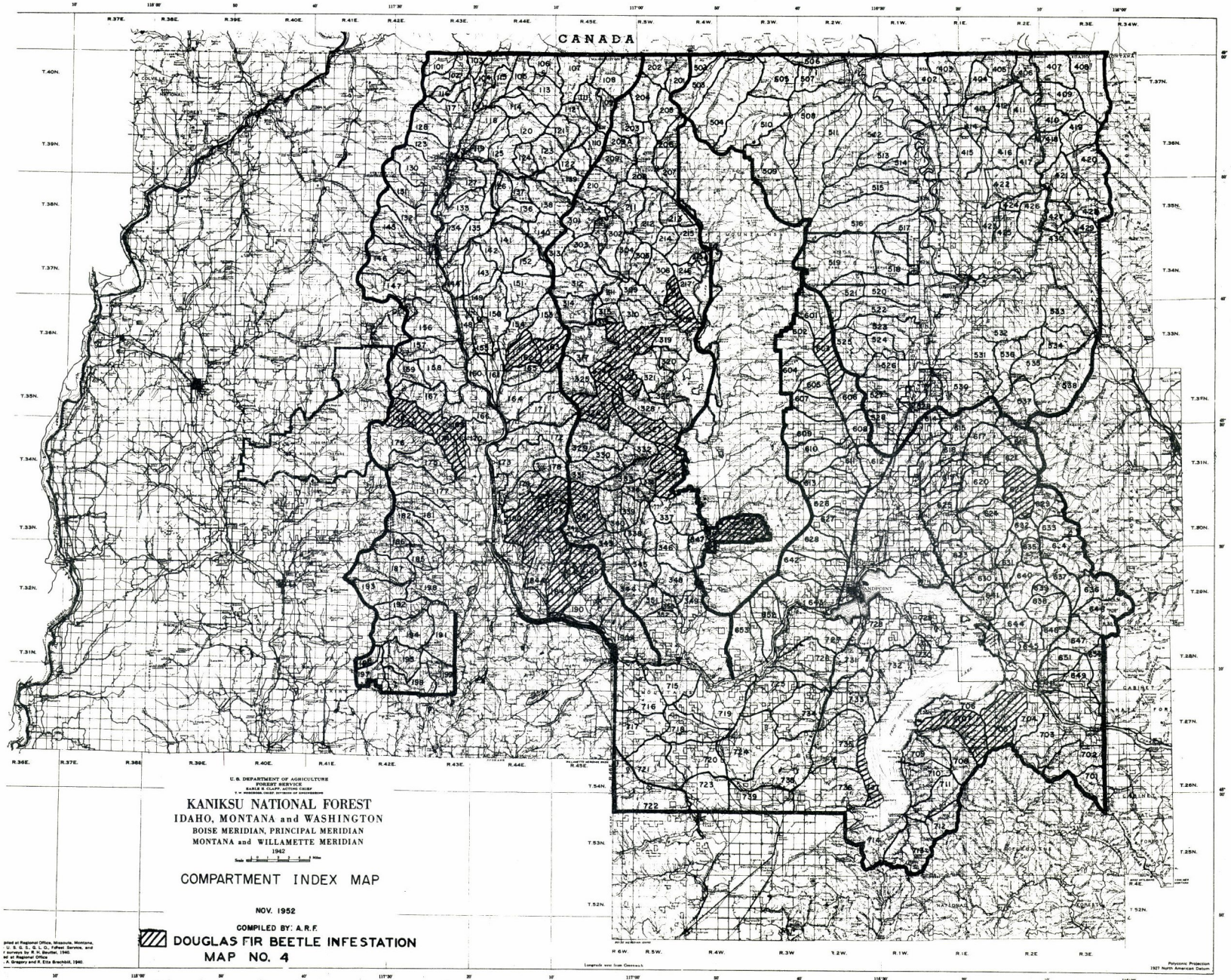
- REGIONAL HEADQUARTERS (MISSOULA, MONTANA)
- FOREST SUPERVISOR'S HEADQUARTERS
- COUNTY SEATS
- DISTRICT RANGER STATIONS
- BOUNDARIES OF NATIONAL FORESTS IN REGION 1
- BOUNDARIES OF NATIONAL FORESTS IN ADJACENT REGIONS

FOREST BOUNDARIES CORRECTED TO JULY 1, 1936

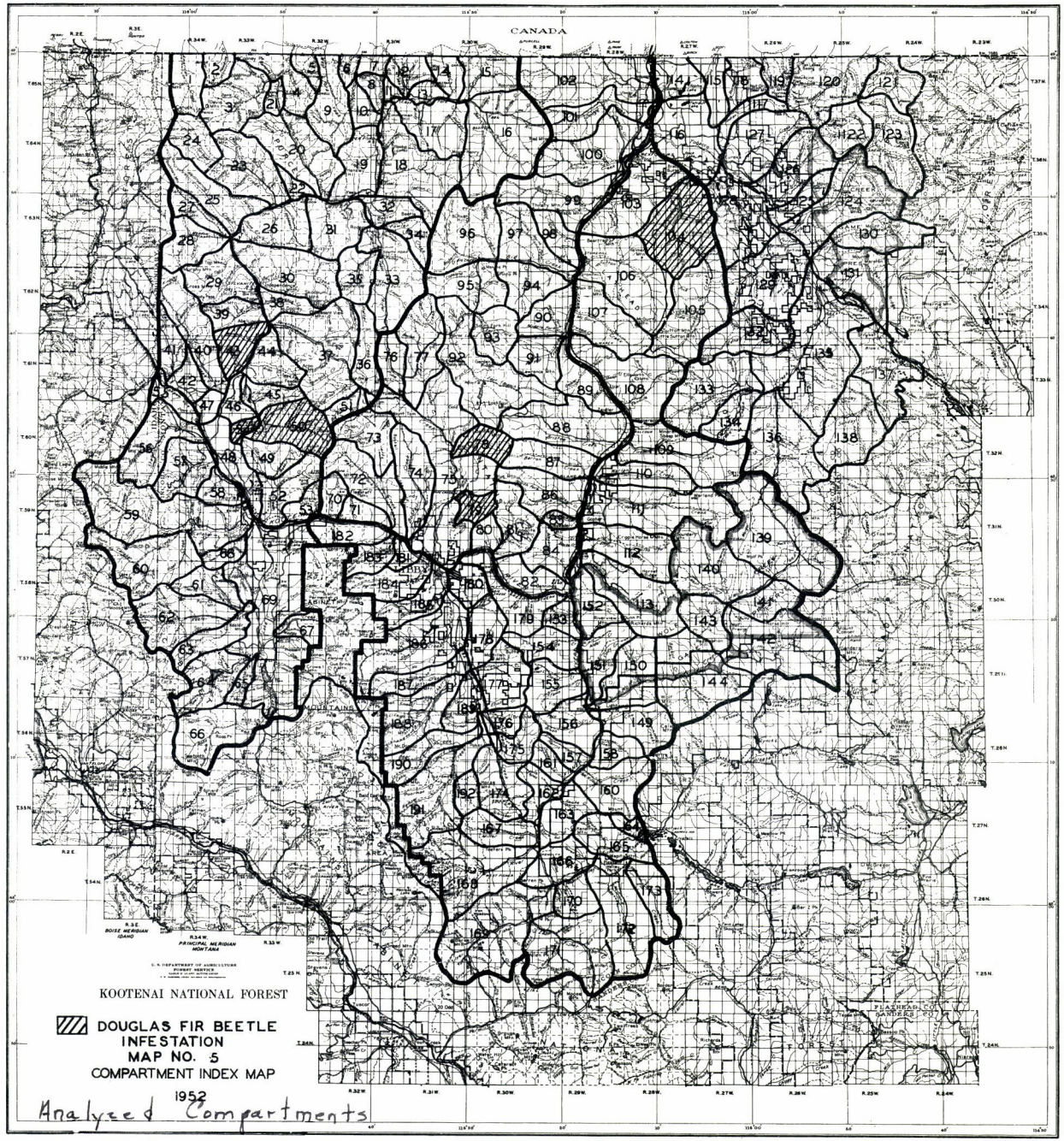
BRITISH COLUMBIA
ALBERTA
CANADA
UNITED STATES
IDAHO
MONTANA
COLVILLE
KANIKSU
KOOTENAI
COEUR D'ALENE
CABINET
FLATHEAD
GLACIER NATIONAL PARK
BLACKFEET INDIAN RESERVATION
LEWIS AND CLARK
HELENA
DEERLODGE
BEAVERHEAD
GALLATIN
ABSAROKA
CUSTER
LOLO
BITTERROOT
NEZPERCE
CLEARWATER
SALMON
WEISER
PAYETTE
BOISE
WALLOWA
WHITMAN
UMATILLA
ST. JOE
SPOKANE
COLUMBIA
MISSOULA
KALISPELL
LIBBY
HAMILTON
BUTTE
GREAT FALLS
HELENA
BOZEMAN
LIVINGSTON
DILLON
SALMON
GRANGEVILLE
LEWISTON
COEUR D'ALENE
WALLACE
ST. MARIES
PRIEST RIVER
NEWPORT
COLVILLE
KETTLE FALLS
REPUBLIC
CHEWELAH
DAVENPORT
CHENEY
SPRAGUE
RITZVILLE
WATERVILLE
WENATCHEE
OKANOGAN
OMAK
CHELAN
ENTIAT
LEAVENWORTH
CASHMERE
WINTHROP
TWISP
CONCRETE
DARRINGTON
SEDRO WOOLLEY
BELLINGHAM
BLAINE
LYNDEN
FERNDALE
MOUNT VERNON
ANACORTES
LA CONNER
OAK HARBOR
COUPEVILLE
FRIDAY HARBOR
EASTSOUND
ORCAS
LOPEZ
ROCHESTER
OLYMPIA
SHELTON
HOQUIAM
ABERDEEN
MONTESANO
ELMA
MCCLEARY
OLYMPIA
TACOMA
PUYALLUP
AUBURN
KENT
RENTON
SEATTLE
EVERETT
MARYSVILLE
ARLINGTON
SNOHOMISH
MONROE
STANWOOD
CAMANO
PORT TOWNSEND
SEQUIM
PORT ANGELES
FORKS
NEAH BAY
CLALLAM BAY
SOUTH BEND
RAYMOND
WILLAPA
LONG BEACH
ILWACO
CHINOOK
CATHLAMET
KELSO
LONGVIEW
KALAMA
WOODLAND
LA CENTER
VANCOUVER
CAMAS
WASHOUGAL
STEVENSON
CARSON
UNDERWOOD
HOOD RIVER
THE DALLES
DUFUR
MAUPIN
MADRAS
METOLIUS
CULVER
PRINEVILLE
SISTERS
BEND
REDMOND
SUNRIVER
LA PINE
CHEMULT
CRESCENT
GILCHRIST
PAISLEY
LAKEVIEW
ADEL
PLUSH
ALTURAS
CEDARVILLE
SUSANVILLE
LITCHFIELD
MACDOEL
TULELAKE
KLAMATH FALLS
MALIN
MERRILL
TULELAKE
KLAMATH FALLS
MALIN
MERRILL
TULELAKE
KLAMATH FALLS
MALIN
MERRILL

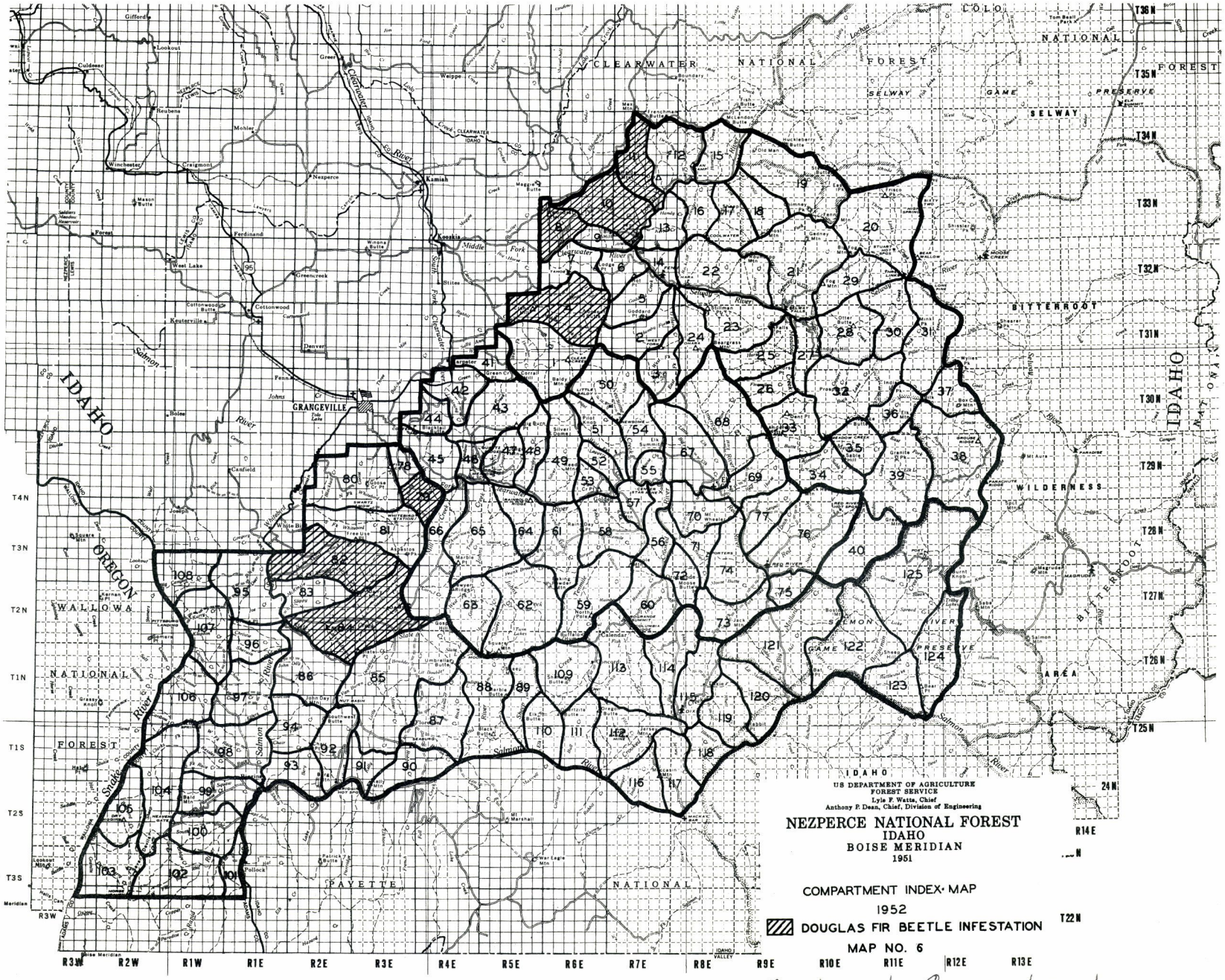

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
EARLE H. CLAPP, ACTING CHIEF
T. W. NORCROSS, CHIEF, DIVISION OF ENGINEERING
CLEARWATER NATIONAL FOREST
IDAHO
BOISE MERIDIAN
1912
DOUGLAS FIR BEETLE INFESTATION
MAP NO. 2
COMPARTMENT INDEX MAP
Analyzed Compartments
NOV. 1952
COMPILED BY: A.R.F.
Compiled at Regional Office, Missoula, Montana from U.S.G.S. G.L.O., Forest Service and other surveys by J. F. Shields, 1933. Traced at Regional Office by D. A. Gregory and R. Fitz Breitholl. Revised 1942
Polyconic projection
North American datum
LITHO. IN U. S. A. BY POLYGRAPHIC CO. of AMERICA, INC.

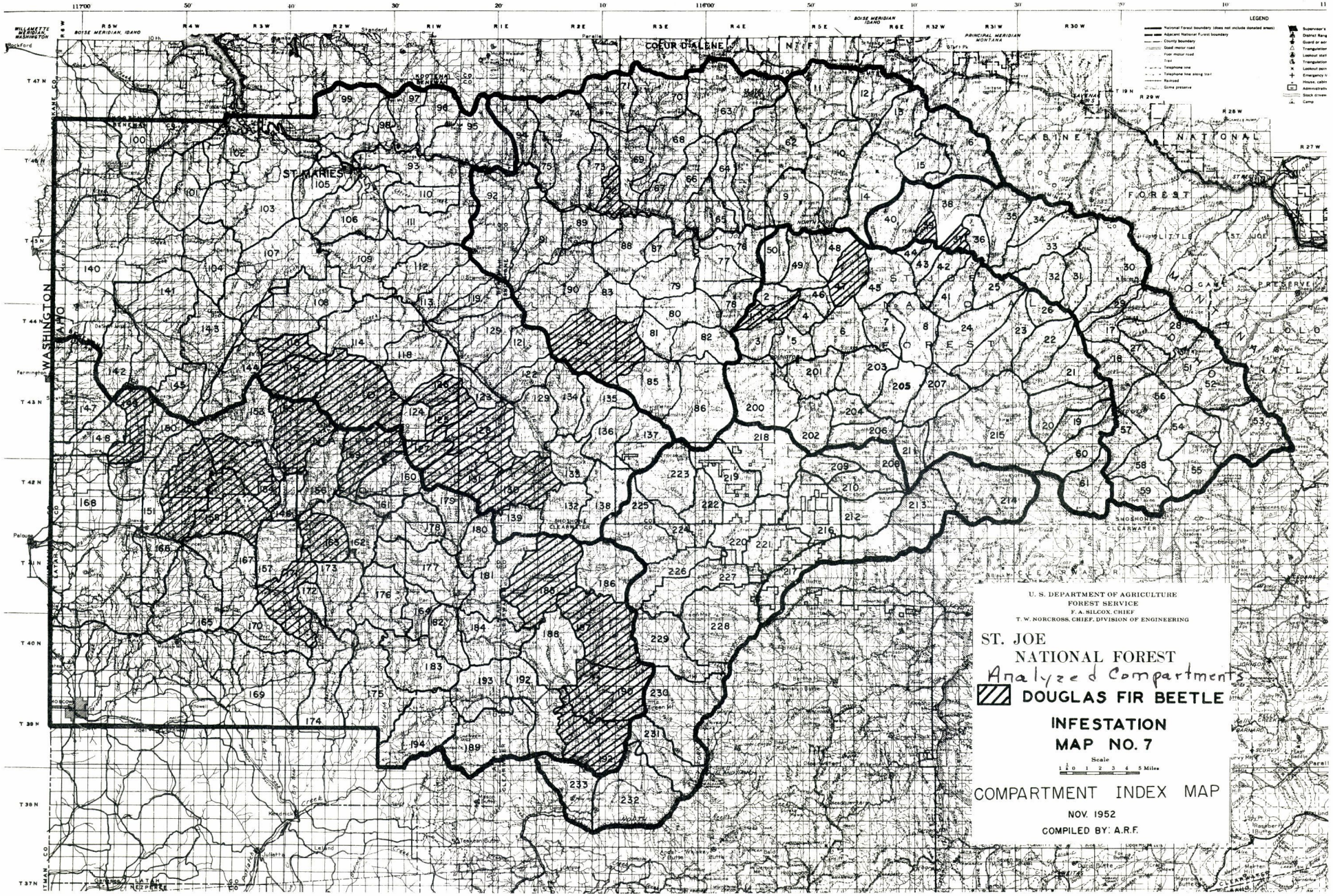

COMPARTMENT INDEX MAP
1952
COEUR D'ALENE NATIONAL FOREST
DOUGLAS FIR BEETLE INFESTATION
MAP NO. 3
Analyzed Compartments
COEUR D'ALENE
ST. JOE NAT'L FOREST
CABINET
NATIONAL FOREST
KANISKSU
NATIONAL FOREST
WASHINGTON
IDAHO
Longitude west from Greenwich



Analyzed Compartments


CANADA
KOOTENAI NATIONAL FOREST
DOUGLAS FIR BEETLE INFESTATION
MAP NO. 5
COMPARTMENT INDEX MAP
1952
Analyzed Compartments


IDAHO
US DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Lyle F. Watts, Chief
Anthony P. Dean, Chief, Division of Engineering
NEZPERCE NATIONAL FOREST
IDAHO
BOISE MERIDIAN
1951
COMPARTMENT INDEX MAP
1952
DOUGLAS FIR BEETLE INFESTATION
MAP NO. 6
CLEARWATER NATIONAL FOREST
SELWAY GAME PRESERVE
BITTERROOT NATIONAL FOREST
WILDERNESS AREA
SALMON RIVER GAME PRESERVE
NEZPERCE NATIONAL FOREST
PAYETTE NATIONAL FOREST
WALLOWA NATIONAL FOREST
IDAHO
OREGON
GRANGEVILLE
Analyzed Compartments


U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
F. A. SILCOX, CHIEF
T. W. NORCROSS, CHIEF, DIVISION OF ENGINEERING
ST. JOE
NATIONAL FOREST
Analyzed Compartments
DOUGLAS FIR BEETLE
INFESTATION
MAP NO. 7
Scale
1 0 1 2 3 4 5 Miles
COMPARTMENT INDEX MAP
NOV. 1952
COMPILED BY: A.R.F.
LEGEND
COEUR D'ALENE
ST. MARIES
CABINET NATIONAL FOREST
WASHINGTON
IDAHO
SHOSHONE CLEARWATER

II. HISTORY

The Douglas-fir beetle is found in all stands of mature Douglas-fir. Windfalls and trees of low vigor are preferred hosts, although it attacks and kills apparently healthy trees. Attacked trees occur both as scattered individuals and as small to large groups. In some areas the annual loss may be but a fraction of a tree per acre, while in others it may be several trees per acre. Under normal forest conditions timber losses from bark beetle attack are held to a low level by natural control factors. However, under conditions favorable for Douglas-fir beetle development, epidemic outbreaks often develop and large volumes of timber are destroyed in a few years. In addition to the constant low-level losses that over a period of years build to large volumes, many instances can be cited of severe Douglas-fir killing resulting from epidemic outbreaks of this beetle. These have occurred in the Yellowstone and Glacier National Parks, on the Kaniksu, Custer and Flathead National Forests, with many small flare-ups in other areas. The most recent outbreak was recorded within the forests of the Clearwater River Drainage of northern Idaho in 1951. Throughout this drainage there were large areas of red-topped trees (1949 and 1950 attacks) occurring both as small groups and large groups of almost complete kills. Surveys conducted in 1951 showed the total loss for the 1950 and 1951 seasons to be approximately 22 percent of the total Douglas-fir stand. Although the infestation in the Clearwater River Drainage was the heaviest recorded within the region, there were many other areas where severe losses were occurring.

III. PRESENT STATUS OF INFESTATION

In view of the severe Douglas-fir beetle infestations that were recorded in 1951, an extensive region-wide survey of the damage caused by this insect was planned for the 1952 season. This survey was designed to provide information that would depict the seriousness of the Douglas-fir beetle infestation on a forest-unit basis. In connection with the execution of this program, valuable assistance was given to the Bureau of Entomology and Plant Quarantine by the Potlatch Forests, Inc., and the State of Idaho. Each of these organizations assigned a crew of three men to a reconnaissance* survey program within

*Reconnaissance surveys are designed to provide information on the extent and general location of insect infestations, the extent and severity of the damage, and the need for further action. These surveys are in less detail, and of a lighter coverage than the more intensive appraisal surveys that are intended to provide information for control action programs.

the private and state owned lands of the Clearwater River Drainage. These crews worked during September and October and contributed some 350 man-days and salaries to the extent of $5,500.

During July 1952 an extensive aerial survey was made of all forested areas of the region. All areas of red-topped Douglas-fir trees were mapped and a record made as to their severity. Ground reconnaissance crews followed this survey, and data were obtained from representative areas showing variable degrees of infestation. This program started on July 5 and continued through October.

Limited available manpower made it necessary to direct these surveys to areas where previous detection surveys had indicated past losses of Douglas-fir in varying degrees of severity. Unfortunately, at the time of the aerial survey, the 1951 attacked trees had not faded sufficiently to be discernible from the air. As a result, the observed groups of red tops to which the surveys were directed were 1950 attacked trees. Obviously during the 1951 and 1952 attack seasons the areas of red tops observed could have undergone material changes. Losses as observed could have increased materially, or the infestations could have died down. Furthermore, in areas of green timber where no red tops were recorded there could have been new infestations starting with 1952 attacks.

Data obtained by this program of reconnaissance surveys provided an infested tree (1952) per acre figure and a percent of stems killed for 1950, 1951 and 1952. These data were considered as a significant sample of the infestation for forest units. However, they were inadequate to determine the status of the infestation for any specific area. As it was found to be impracticable to apply these data to forest wide acreages, they were applied to the acreage of the areas of Douglas-fir infestation recorded by aerial surveys and other detection methods.

Table I shows the data obtained on eight forests and areas covered by this season's Douglas-fir beetle survey program. There are endemic infestations of the Douglas-fir beetle in all forests of the region which may at any time become serious. An example of such an outbreak occurred in the Beartooth Division of the Custer National Forest, where during the past few years Douglas-fir has been killed on a large acreage. A survey of this area in 1952 showed no new infestation.

TABLE I
SUMMARY BY FORESTS OF DOUGLAS-FIR BEETLE INFESTATION
(SURVEY DATA*-1952)

National Forest	Acres of Sample	D-F Stand on Sample		Attacked Trees per Sample Acre			Total For 3-yr. Period	Computed Acreage of Infested Areas	Number of Trees Killed			Total No. Trees Killed	Percent of Trees Killed			Percentage for 3-yr. Period
		Total Trees	Per Acre	1950	1951	1952			1950	1951	1952		1950	1951	1952	
Bitterroot	557.0	16,620	29.84	.21	.13	.06	.40	226,000	47,460	29,380	13,560	90,400	.70	.44	.20	1.34
Clearwater	333.5	3,835	11.50	.21	.22	.44	.87	77,000	16,170	16,940	33,880	66,990	1.83	1.91	3.83	7.57
C. d'Alene	195.5	2,579	13.19	.22	.22	.82	1.26	203,000	44,660	44,660	166,460	255,780	1.70	1.67	6.24	9.61
Kaniksu	175.5	2,098	11.95	.21	.20	.53	.94	88,600	18,606	17,720	46,958	83,284	1.76	1.67	4.43	7.86
Kootenai	446.0	9,891	22.18	.31	.27	.97	1.55	160,400	49,724	43,308	155,588	248,620	1.40	1.22	4.37	6.99
Lolo	259.2	6,713	25.90	.16	.19	.28	.63	89,200	14,272	16,948	24,976	56,196	.62	.72	1.08	2.43
Nezperce	150.2	1,739	11.58	.26	.16	.27	.69	82,000	21,320	13,120	22,140	56,580	2.24	1.38	2.33	5.95
St. Joe	78.2	1,530	19.57	.20	.14	.11	.45	47,000	9,400	6,580	5,170	21,150	1.05	.72	.59	2.36
TOTALS	2195.1	45,005	20.50	.23	.20	.48	.91	964,200	221,612	188,656	468,732	879,000	1.12	.98	2.34	4.44

*This tabulation does not include any of the more detailed reconnaissance or appraisal survey data collected in the fall of 1952 for compartment analyses.

On the eight national forests for which infestation data was obtained only the Bitterroot National Forest has a decrease in severity from 1950 to 1952. Infestations of this character are considered as normal, although from such situations the loss of timber soon builds to rather startling proportions.

The infestation within the Clearwater National Forest is serious. During the past three years there has been a marked increase in the volume of Douglas-fir killed.

During 1952 the Douglas-fir beetle infestation within the Coeur d'Alene National Forest increased to serious proportions. Large volumes of Douglas-fir timber are being destroyed.

The 1952 Douglas-fir beetle situation on the Kaniksu National Forest is potentially serious. On some areas the increase in infestation was severe, while in others the situation remained somewhat static. Although the loss of about one-half tree per acre as shown in Table I is not so severe for a year or two, such losses soon build to alarming proportions. All infested areas should be watched carefully.

Data obtained from the survey on the Kootenai National Forest show a marked increase in the severity of the Douglas-fir beetle infestation. A loss of nearly a tree per acre from an average residual stocking of twenty-two trees per acre soon depletes the timber stand and amounts to a large volume. Serious losses of Douglas-fir have occurred on and near this forest during the past ten years.

On the Lolo National Forest the Douglas-fir beetle infestation is not overly severe at this time, although the data indicate a slight increase in the infestation during the past season. There are some areas where the loss is heavier than the average figures depict.

There has been but little change in the status of the Douglas-fir beetle infestation on the Nezperce National Forest during the past three years. However, there are individual areas of severe infestation, while past losses have been heavy on other areas.

The rather limited survey data obtained for the St. Joe National Forest are applied only to an acreage along the Upper St. Joe River Drainage where they were obtained. There are other areas on the forest where the infestations of the Douglas-fir beetle are more severe. This is especially true on the Palouse District and on areas within the Clearwater River Drainage. The Clearwater River area was surveyed by crews from Potlatch Forests, Inc., and the State of Idaho. The severity of the infestation as recorded by those crews is shown in the following tabulation.

Clearwater River Drainage

	Area	Acres of Unit	Percent of Douglas-fir stand Killed by Beetles 1951	1952
Clearwater Unit				
1	N. F. Orofino Cr.	91,853	5	5
2A	Poorman Creek	22,246	2	2
3	Silver Creek	28,928	7	4
4	Bertha Hill	7,014	1	½
5	Benton Creek	28,544	6	5
6	N. F. Reed Cr.	589	2	2
7	Shanghi Pt.	2,432	24	16
8A	Rhodes Cr.	7,296	5	3
9	Dennison Cr.	896	24	5
		189,798	Ave. 4.8	Ave. 4.5
Potlatch Units				
1	Island Ranch	49,408	4.1	5.2
1A	Dent (Potlatch Dick)	29,184	0	6.6
2	Lone Creek	11,110	0	11.7
3	Jackson Mountain	6,195	1.9	.5
4	Potlatch Creek	7,142	1.4	0
4A	Potlatch Creek	-----	0	0
4B	Potlatch Creek	358	5.0	5.2
5	Floodwood	133,760	9.2	6.8
6	Upper Stony	845	1.7	2.3
6A	Outside Upper Stony	?	0	0
6B		?	0	.9
6C		?	0	1.0
7	St. Maries	1,152	1.7	2.3
8	Hidden Cr.	2,202	0	2.2
12+				
12A	Crain Pt.	9,958	3.6	3.8
13	Gold Hill	2,918	2.3	0
		254,232	Ave. 3.9	Ave. 4.3

It is apparent from the forest summaries that the Douglas-fir beetle infestation as observed in 1952, is continuing in its recorded severity. Some areas show an increase for 1952, while others have remained fairly static as determined by these survey data.

IV. VOLUME LOSSES OF MERCHANTABLE DOUGLAS-FIR ON A FOREST UNIT BASIS

In Table II the volume losses for national forests were computed from the data presented in Table I. An average board foot volume per tree by forest was used in converting trees to volume.

Table II shows 333,048 thousand board feet of Douglas-fir has been killed by the Douglas-fir beetle on the eight national forests in the past three years. Of this amount, 177,540 thousand board feet were killed in 1952. It is significant to note that a volume of 119,042 thousand board feet was lost in 1952 on two forests, the Coeur d'Alene and Kootenai.

The total volumes of trees killed by the Douglas-fir beetle are conservative for all eight forests. As stated before, aerial surveys determined mainly the acreage of infested area to which the reconnaissance survey data was applied. Small attack spots not discernible from the air could have spread rapidly in 1951 and 1952, but at the time of the aerial survey no foliage discoloration could be detected. This applies also to the new infestations starting in 1952. The acreage of such infestations is not recorded.

From Table II it is apparent that the resultant mortality in Douglas-fir stands is a serious drain upon this valuable resource.

TABLE II

Loss of Douglas-Fir Merchantable Volume for Period 1950-52 on Eight National Forests

Region One

Thousand Board Feet - Scribner

Forest	Total Volume Douglas-Fir	Acres Infested	Volume Loss			3-Year Volume Loss
			1950	1951	1952	
Bitterroot	1,552,359	226,000	16,611	10,283	4,746	31,640
Clearwater	686,781	77,000	8,269	8,673	17,347	34,289
Coeur d'Alene	1,049,943	203,000	17,328	17,328	64,586	99,242
Kaniksu	957,154	88,600	6,754	6,432	17,046	30,232
Kootenai	1,059,927	160,400	17,403	15,158	54,456	87,017
Lolo	1,192,930	89,200	4,995	5,932	8,742	19,669
Nezperce	2,807,382	82,000	7,824	4,815	8,125	20,764
St. Joe	344,976	47,000	4,531	3,172	2,492	10,195
Total	9,651,452	973,200	83,715	71,793	177,540	333,048

V. COMPARTMENT ANALYSIS

On September 8, 1952, representatives of private industry, Bureau of Entomology and Plant Quarantine, and Forest Service met in Missoula, Montana. At that time the Douglas-fir beetle problem was discussed. It was decided that insect surveys and studies be conducted in selected Douglas-fir compartments to determine the extent of damage and degree of infestation.

Funds were made available and shortly thereafter crews from six forests were trained by the Bureau of Entomology and Plant Quarantine. This work was started on the selected areas under their technical supervision. In setting up the program it was agreed that the surveys would be limited to those compartments where action programs through logging for control and salvage could be initiated in fiscal years 1953 and 1954.

In selecting the compartments to be analyzed the following procedure was used:

1. The Bureau of Entomology and Plant Quarantine prepared a ½" map for each forest showing:

   a. Areas infested as mapped by the aerial survey.

   b. Ground reconnaissance strips numbered on the map 1, 2, 3, 4, etc., and referenced to an attached typewritten sheet giving the insect data for each strip.

2. From the aerial survey map and infestation data each forest prepared a list of compartments according to probable severity of insect attacks.

3. Compartments which could be logged for control and salvage in fiscal years 1953 and 1954 under an action program involving the construction of operator and federal access roads were designated in the above list.

4. Survey work began in the compartments selected under No. 3. Original strip data gathered during the aerial survey was used where it could be tied down to an action compartment. Survey data furnished by Potlatch Forests, Inc., served many of the St. Joe compartments.

The results of the compartment surveys are shown in Table III. Ninety-nine compartments were analyzed (management units, usually 5,000 to 10,000 acres in size) on six national forests. A total Douglas-fir volume of 1,136 million board feet for all ownerships was analyzed with 920 million board feet being on national forest lands. Of the 216 million board feet on private lands, the surveys found 40 million board feet of merchantable timber killed since 1948. On national forest lands

137 million board feet still classed as merchantable timber have been killed in the past five years. Of the 137 million board feet 53 million board feet were from 1952 attacks and 84 million board feet in the previous period. Of the total merchantable Douglas-fir volume of 1,136 million board feet in the ninety-nine compartments 16 percent has been bark beetle killed in the past five years but can still be salvaged under an action program.

Table III shows by forests the total volume of Douglas-fir covered by appraisal surveys, reconnaissance surveys, other examinations and estimates. The table breaks down by forests the merchantable volumes lost in 1952 attacks and the present merchantable volumes lost by attacks prior to 1952. It gives the total merchantable volume now dead which could be salvaged.

TABLE III

Summary of Douglas-fir Compartment Data
Six National Forests (Nonreserved)
(Volumes in Thousand Board Feet-Scribner)

Forest	Acres	All Species Volume	Total Douglas-fir Merch. Volume- Dead and Alive					Merch. Volume Killed in 1952 Attacks					Present Merch. Volume Killed Prior to 1952					Total Merch. Volume Killed				
			Appraisal Surveys	Reconn. Surveys	Other Examb	Estimates	Total	Appraisal Surveys	Reconn. Surveys	Other Examb	Estimates	Total	Appraisal Surveys	Reconn. Surveys	Other Examb	Estimates	Total	Appraisal Surveys	Reconn. Surveys	Other Examb	Estimates	Total
Clearwater																						
Nat'l Forest	67,023	1,146,362	---	172,221	32,632	31,345	236,198	---	15,129	1,732	1,978	18,839	---	30,237	1,296	3,456	34,989	---	45,366	3,028	5,434	53,828
Other Owners	106	1,338	---	110	---	45	155	---	5	---	2	7	---	20	---	4	24	---	25		6	31
Total	67,129	1,147,700	---	172,331	32,632	31,390	236,353	---	15,134	1,732	1,980	18,846	---	30,257	1,296	3,460	35,013	---	45,391	3,028	5,440	53,859
Coeur d'Alene																						
Nat'l Forest	65,733	870,560	---	139,877	55,401	60,698	255,976	---	10,301	2,387	2,837	15,525	---	11,926	2,051	3,660	17,637	---	22,227	4,438	6,497	33,162
Other Owners	3,967	54,228	---	17,748	220	4,654	22,622	---	1,449	13	200	1,662	---	2,254	7	331	2,592	---	3,703	20	531	4,254
Total	69,700	924,788	---	157,625	55,621	65,352	278,598	---	11,750	2,400	3,037	17,187	---	14,180	2,058	3,991	20,229	---	25,930	4,458	7,028	37,416
Kaniksu																						
Nat'l Forest	35,489	309,235	34,331	4,423	4,123	28,278	71,155	889	158	233	257	1,537	1,478	188	287	449	2,402	2,367	346	520	706	3,939
Other Owners	7,256	42,508	5,346	1,938	---	6,698	13,982	347	134	---	70	551	100	35	---	98	233	447	169	---	168	784
Total	42,745	351,743	39,677	6,361	4,123	34,976	85,137	1,236	292	233	327	2,088	1,578	223	287	547	2,635	2,814	515	520	874	4,723
Kootenai																						
Nat'l Forest	22,041	245,541	33,864	---	30,996	7,427	72,287	1,098	---	796	176	2,070	1,500	---	1,272	266	3,038	2,598	---	2,068	442	5,108
Other Owners	4,120	32,596	9,587	---	---	4,887	14,474	645	---	---	0	645	861	---	---	39	900	1,506	---	---	39	1,545
Total	26,161	278,137	43,451	---	30,996	12,314	86,761	1,743	---	796	176	2,715	2,361	---	1,272	305	3,938	4,105	---	2,068	481	6,654
Nezperce																						
Nat'l Forest	61,683	670,256	19,361	57,085	5,638	105,995	188,079	1,312	1,371	---	3,524	6,207	2,909	3,621	337	7,853	14,720	4,221	4,992	337	11,377	20,927
Other Owners	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total	61,683	670,256	19,361	57,085	5,638	105,995	188,079	1,312	1,371	---	3,524	6,207	2,909	3,621	337	7,853	14,720	4,221	4,992	337	11,377	20,927.
St. Joe																						
Nat'l Forest	34,616	385,499	---	45,091	7,389	44,004	96,484	---	3,876	356	4,300	8,532	---	6,113	575	5,025	11,713	---	9,989	931	9,325	20,245
Other Owners	45,123	725,912	45	17,289	89,957	57,578	164,869	1	2,268	5,999	4,936	13,204	3	1,608	12,284	6,444	20,339	4	3,876	18,283	11,380	33,543
Total	79,739	1,111,411	45	62,380	97,346	101,582	261,353	1	6,144	6,355	9,236	21,736	3	7,721	12,859	11,469	32,052	4	13,865	19,214	20,705	53,788
Grand Total																						
Nat'l Forest	286,585	3,627,453	87,556	418,697	136,179	277,747	920,179	3,299	30,835	5,504	13,072	52,710	5,887	52,085	5,818	20,709	84,499	9,186	82,920	11,322	33,781	137,209
Other Owners	60,572	856,582	14,978	37,085	90,177	73,862	216,102	993	3,856	6,012	5,208	16,069	964	3,917	12,291	6,916	24,088	1,957	7,773	18,303	12,124	40,157
Total	347,157	4,484,035	102,534	455,782	226,356	351,609	1,136,281	4,292	34,691	11,516	18,280	68,779	6,851	56,002	18,109	27,625	108,587	11,143	90,693	29,625	45,905	177,366

Infestation Trend Based on Compartment Data

The percent of Douglas-fir killed by volume for the analyzed compartments on six forests are shown in the table below. The percentages do not represent a forest average but only apply to the Douglas-fir situation in the analyzed compartments on each forest. In the compartment analysis no attempt was made to establish forest averages. Compartments were selected for survey on the basis of an action program involving control and salvage by logging and not for sampling the forest Douglas-fir volume.

TABLE IV

PERCENT OF DOUGLAS-FIR VOLUME LOST BY YEARS IN ANALYZED COMPARTMENTS ON SIX NATIONAL FORESTS

(All Ownerships)

(Based on Stems)

Forest	Acres of Sample	1950 %	1951 %	1952 %	3-year Total %
Clearwater	211	6.1	5.9	9.5	21.5
Coeur d'Alene	679	4.1	4.2	6.4	14.7
Kaniksu	560	2.0	1.3	2.9	6.2
Kootenai	340	3.6	3.5	4.7	11.8
Nezperce	419	1.1	2.2	2.8	6.1
St. Joe	200	5.4	4.2	5.1	14.7

The infestation trend and volume losses are serious on all six forests. Most of the compartments analyzed have infestations of an epidemic nature. The build-up during the past three years is significant. All forests in the analysis showed a higher infestation rate in 1952 than for 1951. Figure 1 shows the comparison of the percentage volume losses by years as well as the total loss in percent for the period 1950-52.

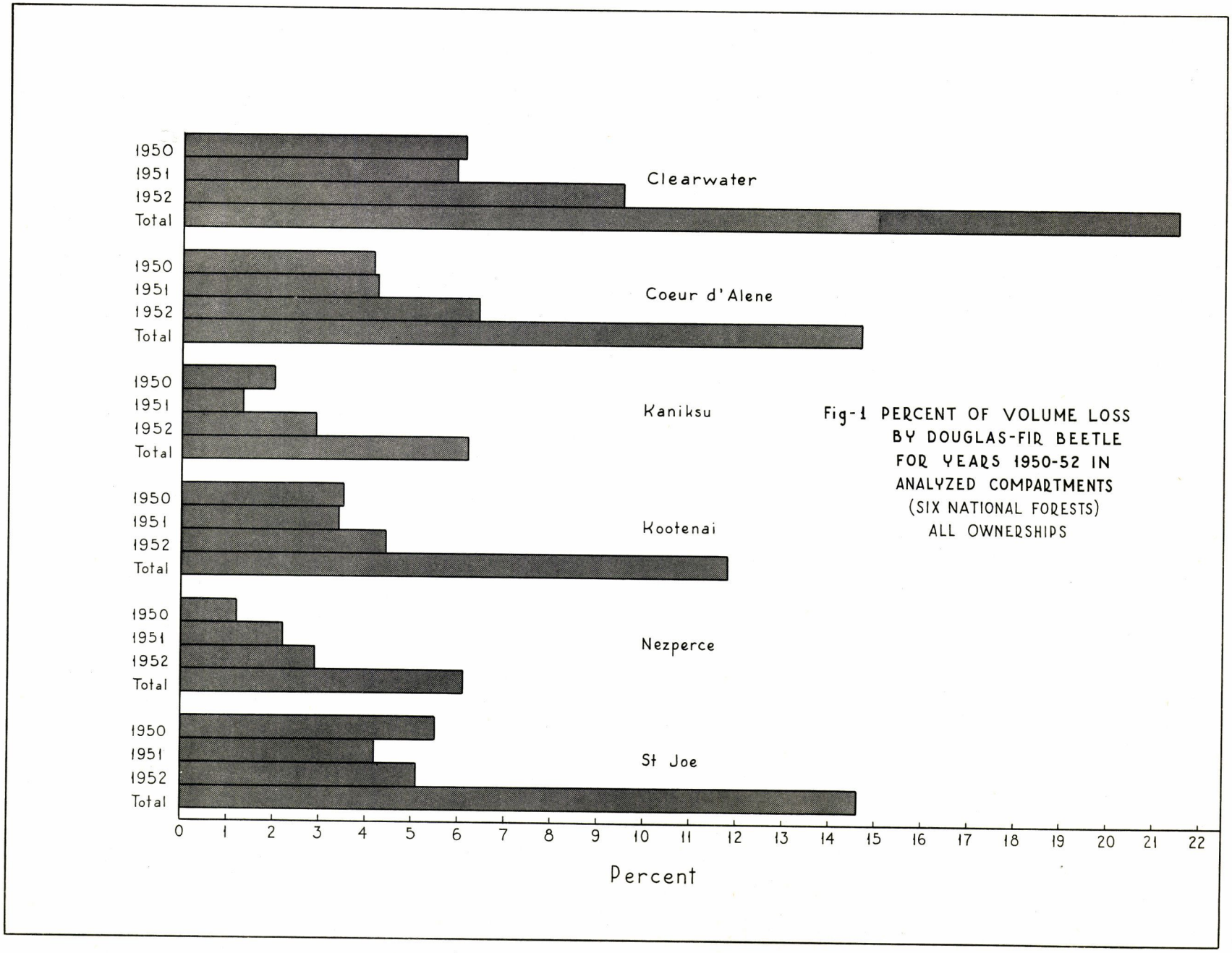


Fig-1 PERCENT OF VOLUME LOSS BY DOUGLAS-FIR BEETLE FOR YEARS 1950-52 IN ANALYZED COMPARTMENTS (SIX NATIONAL FORESTS) ALL OWNERSHIPS

Volume Losses by Forests in Analyzed Compartments

The Douglas-fir beetle infestation follows no pattern in the analyzed compartments. Generally, the infestations can be compared to thousands of spot fires scattered through the forest areas - many starting, more spreading and a few dying out.

The amount of Douglas-fir volume and acreage covered by compartment surveys varied by individual forest. The total kill shown for the analyzed compartments by forests does not represent entirely the scope of an action program needed on that particular forest. Many seriously infested areas were not surveyed due to fund limitations, availability of personnel and season of year (October and November). Forests having infested areas so situated that logging for control and salvage could begin immediately may have conducted intensive appraisal surveys to secure necessary infestation data for control and salvage sales. Forests dependent on extensive road development in effecting control and salvage ran the lighter type of reconnaissance survey to provide information on the extent and severity of damage. With logging delayed in such compartments until late 1953 or until 1954 due to road construction needs, more intensive surveys could hardly be justified in view of further insect attacks before logging took place. With the reconnaissance survey more area could be examined than with the detailed appraisal survey. The situation in the Eldorado Compartment on the Clearwater National Forest can best describe the probable losses of the Douglas-fir sawtimber volumes in many of our compartments unless a control and salvage program is started. Perhaps it should be stated in another way -- that losses now occurring in the Eldorado Compartment have been accepted in some Douglas-fir timber stands for many years.

The Eldorado Compartment in the Pierce Working Circle contains 21,600 acres, of which 12,605 acres are estimated to have 5 percent more Douglas-fir sawtimber by volume. Eldorado has a total sawtimber volume of 242 million board feet, of which 94 million board feet is Douglas-fir. In October 1952 a reconnaissance survey was made to determine the extent and severity of the Douglas-fir beetle damage. The results follow:

Year	Percent Loss by Volume	Volume Loss in M.B.M.
1948 & 1949	7	6,000
1950	5	5,000
1951	7	7,000
1952	9	8,000
Total	28	26,000
1960	?	?

The Pierce Working Circle insect losses are not confined to Eldorado. The total beetle-killed merchantable timber since 1948 in the analyzed compartments of this working circle follows:

Compartment	Volume Loss in MBM	Total Douglas-fir in MBM
Eldorado	26,000	94,000
Mud Creek	3,000	10,000
Cedar Creek	5,000	16,000
Yakus Creek	8,000	20,000
Lolo Creek	2,000	11,000
TOTAL	44,000	151,000

The above figures show that in the past five years the Pierce Working Circle in the analyzed compartments has lost 44 million board feet out of 151 million board feet of Douglas-fir sawtimber in these compartments.

The situation on the Coeur d'Alene National Forest appears to be the most serious forest-wide of any forest in the region. Severe areas of infestation are scattered generally throughout the forest wherever Douglas-fir sawtimber occurs. Table II lists a loss over the past three-year period of nearly 100 million board feet out of a total Douglas-fir merchantable volume of one billion board feet. Table II shows approximately 65 million board feet were killed in 1952 attacks. The analyzed compartments covered about one-quarter of the Douglas-fir volume on the Coeur d'Alene Forest (Table V). They reveal a three-year total kill of 37 million board feet with nearly 17 million in 1952.

Figure 2 shows by forests the merchantable volume loss as compared to the total Douglas-fir volume in the compartments. Tables V list the analyzed compartments by forests in order of total merchantable volumes lost.

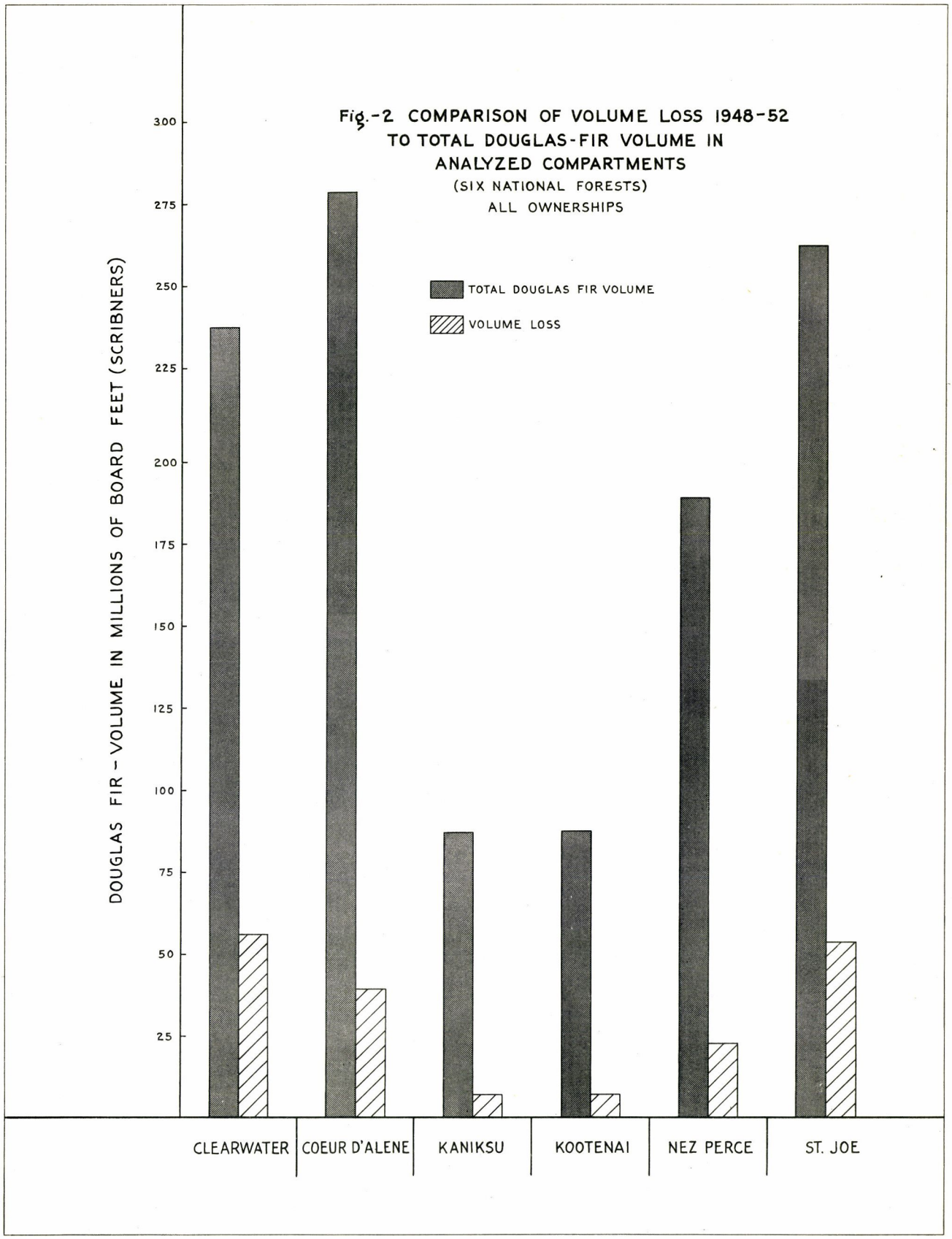


Fig.-2 COMPARISON OF VOLUME LOSS 1948-52
TO TOTAL DOUGLAS-FIR VOLUME IN
ANALYZED COMPARTMENTS
(SIX NATIONAL FORESTS)
ALL OWNERSHIPS
TOTAL DOUGLAS FIR VOLUME
VOLUME LOSS
DOUGLAS FIR - VOLUME IN MILLIONS OF BOARD FEET (SCRIBNERS)
300
275
250
225
200
175
150
125
100
75
50
25
CLEARWATER
COEUR D'ALENE
KANIKSU
KOOTENAI
NEZ PERCE
ST. JOE

TABLE V

Loss of Douglas-fir Merchantable Timber
By Compartments for Period 1948-1952

Clearwater National Forest
(All Ownerships)

Compartment	No.	Acres	Thousand Board Feet-Scribner: All Species Volume	Douglas Fir Volume	Volume Killed 1952	Volume Killed 1948-51	Total Killed Volume
Eldorado	49	12,605	242,438	94,327	9,211	17,245	26,456
Yakus Cr.	50	4,225	67,401	20,080	4,030	4,319	8,349
Cedar Cr.	47	4,290	61,999	16,352	1,058	4,370	5,428
Sourdough Sneak	28	9,933	159,612	30,419	1,014	3,152	4,166
Mud Cr.	48	2,426	42,779	10,250	1,179	2,203	3,382
Lolo Cr.	45	6,062	89,132	10,602	147	1,654	1,801
Quartz Cr.	30	9,666	196,768	15,293	774	905	1,679
Skull Cr.	25	5,798	107,918	15,895	795	794	1,589
Swanson Deadhorse	29	5,314	91,337	6,662	638	371	1,009
Yoosa Cr.	46	6,610	88,316	16,473	0	0	0
Forest Total		67,129	1,147,700	236,353	18,846	35,013	53,859
National Forest		67,023	1,146,362	236,198	18,839	34,989	53,828
Other		106	1,338	155	7	24	31

TABLE V

Loss of Douglas-fir Merchantable Timber
By Compartments for Period 1950-52

Coeur d'Alene National Forest
(All Ownerships)

Compartment	No.	Acres	Thousand Board Feet--Scribner: All Species Volume	Douglas Fir Volume	Volume Killed 1952	Volume Killed 1950-51	Total Volume Killed
Upper Cougar	45	7,644	120,733	39,388	2,474	3,629	6,103
Comfy Cr.	42	5,872	98,844	43,761	2,023	2,238	4,261
Picnic Cr.	7	3,780	43,986	12,346	1,127	1,486	2,613
Cascade	6	4,895	62,970	18,585	1,471	1,110	2,581
Iron Cr.	5	4,427	53,128	14,668	1,316	1,242	2,558
Bootjack	14	3,750	49,186	15,732	1,784	730	2,514
Bobtail	93	3,590	39,453	22,025	627	1,455	2,082
Copper Cr.	13	5,362	59,078	10,592	924	1,066	1,990
Lavern Cr.	16	3,420	48,940	16,781	571	1,291	1,862
Burnt Cabin	1	2,798	32,879	12,958	1,056	511	1,567
Bumblebee	17	2,387	17,550	9,324	389	1,026	1,415
Potter Cr.	19	2,980	32,075	8,337	385	688	1,073
Breakwater	78	3,174	35,381	10,417	231	800	1,031
Snow Cr.	64	1,165	15,399	5,586	612	406	1,018
Leiberg Cr.	15	6,804	76,660	15,934	797	159	956
Teepee Cr.	22	1,120	11,200	4,689	174	704	878
Tom Lavin	3	2,110	15,875	4,773	477	334	811
Lower Steamboat	81	1,062	19,024	3,309	63	514	577
Halsey	23	1,012	16,042	2,533	218	158	376
Trail Cr.	18	770	9,625	1,925	193	173	366
Skitwish	69	793	8,555	2,009	181	140	321
Marie Cr.	71	503	54,699	2,419	48	194	242
Spruce Cr.	58	282	3,496	507	46	177	223
Forest Total		69,700	924,778	278,598	17,187	20,231	37,418
National Forest		65,733	870,550	255,976	15,525	17,639	33,164
Other		3,967	54,228	22,622	1,662	2,592	4,254

TABLE V

Loss of Douglas-fir Merchantable Timber
By Compartments for Period 1950-52

Kaniksu National Forest
(All Ownerships)

Compartment	No.	Acres	Thousand Board Feet - Scribner: All Species Volume	Douglas Fir Volume	Volume Killed 1952	Volume Killed 1950--51	Total Volume Killed
Timber Mtn.	168	3,186	19,154	7,938	293	531	824
Johnson	705	1,592	13,160	5,702	196	206	402
Blickensderfer	341	3,452	53,739	7,565	160	230	390
Kings Lake	180	5,036	25,156	8,836	105	251	356
Upper Pack River	603	1,237	13,818	4,395	323	5	328
N. Granite	707	2,906	27,081	7,649	123	157	280
N. Baldy	326	2,289	26,525	3,194	159	106	265
L.E. Branch LeClerc	162	1,422	6,714	2,537	185	48	233
Solo	329	3,429	62,646	5,227	0	228	228
Bismark	318	760	4,827	2,092	67	157	224
N. Fk. Skookum	183	3,126	13,543	4,890	119	79	198
Capehorn	737	377	2,810	1,045	66	117	183
N. Fk. Lamb	323	803	5,028	1,290	90	81	171
Upper Lamb	324	1,242	5,295	1,402	27	77	104
High Bridge	334	1,915	14,128	2,061	20	67	87
Marshall Lake	190	1,821	7,956	5,153	37	49	86
Tacoma	174	1,018	4,651	1,803	0	74	74
Cusick	169	894	3,878	1,616	26	43	69
Bead Lake	189	1,780	7,667	2,462	18	42	60
Mystic Lake	184	1,237	6,439	3,176	33	19	52
Pend Oreille	622	798	15,082	1,990	21	28	49
Reeder Bay	308	1,234	6,732	1,297	14	16	30
Binarch	327	116	648	174	3	20	23
Seco	163	275	1,561	363	3	4	7
Fedar	307	436	1,966	552	0	0	0
Hazard	320	364	1,539	728	0	0	0
Forest Total		42,745	351,743	85,137	2,088	2,635	4,723
National Forest		35,489	309,235	71,155	1,537	2,402	3,939
Other		7,256	42,508	13,982	551	233	784

TABLE V

Loss of Douglas-fir Merchantable Timber
By Compartments for Period 1948-1952

Kootenai National Forest
(All Ownerships)

Compartment	No.	Acres	Thousand Board Feet-Scribner				
			All Species Volume	Douglas Fir Volume	Volume Killed 1952	Volume Killed 1948-51	Total Volume Killed
Blue Cr.	78	2,914	24,555	8,580	1,234	1,378	2,612
Pinkham Cr.	104	10,524	113,665	48,084	810	1,388	2,198
O'Brien Cr.	50	6,954	93,862	15,840	651	698	1,349
Doak Cr.	79	3,426	29,484	9,461	0	325	325
Ferrel Cr.	43	1,049	7,621	1,906	7	100	107
Yaak Mtn.	54	1,294	8,950	2,890	14	48	62
Forest Total		26,161	278,137	86,761	2,716	3,937	6,653
National Forest		22,041	245,541	72,287	2,071	3,037	5,108
Other		4,120	32,596	14,474	645	900	1,545

TABLE V

Loss Of Douglas-fir Merchantable Timber
By Compartments for Period 1948-1952

Nezperce National Forest
(All Ownerships)

Compartment	No.	Acres	Thousand Board Feet-Scribner: All Species Volume	Douglas Fir Volume	Volume Killed 1952	Volume Killed 1948-51	Total Volume Killed
Pete King Cr.	10	8,273	98,042	31,749	2,359	4,278	6,637
Canyon Cr.	11	10,842	83,848	24,043	1,635	3,731	5,366
Grouse Cr.	79	6,678	77,082	19,347	948	1,530	2,478
Smith Cr.	8	5,037	42,375	13,771	491	1,459	1,950
Skookum Chuck Cr.	82	8,794	73,584	32,300	243	1,319	1,562
Brown Springs	4	10,867	130,129	21,525	0	1,542	1,542
Slate Cr.	84	11,372	165,196	45,344	531	861	1,392
Forest Total		61,863	670,256	188,079	6,207	14,720	20,927
National Forest		61,863	670,256	188,079	6,207	14,720	20,927
Other		0	0	0	0	0	0

TABLE V

Loss of Douglas-fir Merchantable Timber
By Compartments for Period 1948-52

St. Joe National Forest
(All Ownerships)

Thousand Board Feet-Scribner

Compartment	No.	Acres	All Species Volume	Douglas Fir Volume	Volume Killed 1952	Volume Killed 1948-51	Total Volume Killed
E.Fk.Potlatch Cr.	185	11,717	348,576	51,985	2,601	10,401	13,002
Elk River Partridge	187	3,570	46,841	18,228	363	4,196	4,559
Upper Emerald Cr.	131	4,933	50,911	11,150	3,606	776	4,382
Cloverleaf Burnt Cr.	191	6,423	82,445	33,297	2,197	1,903	4,100
Deep Bull Run Cr.	190	2,972	60,868	19,584	2,851	1,143	3,994
Mid. Fk. Big Bear Cr.	171	3,989	24,005	10,250	1,284	1,276	2,560
Jerome Cr.	158	1,665	20,744	5,731	1,398	1,073	2,471
Willow Lower Emerald	128	2,845	22,958	7,139	2,345	0	2,345
Last Chance Big Cr.	154	2,041	25,856	6,546	697	1,303	2,000
Mannering-E.Fk.Meadow Cr.	155	4,188	43,129	13,911	279	1,683	1,962
Upper Latch Cr.	144	2,215	16,418	5,500	207	1,678	1,885
Turner Cr.	39	1,566	36,558	6,849	410	960	1,370
Gold-Lemman Cr.	152	1,402	11,731	4,215	0	1,333	1,333
Bussel Cr.	84	5,192	50,757	5,168	1,281	0	1,281
Charlie-Hume Cr.	117	2,422	29,690	5,119	0	1,228	1,228
Ramskull Willow Cr.	116	1,847	17,470	4,105	284	687	971
Siwash Cr.	47	2,688	34,962	6,166	626	207	833
Upper Santa Cr.	115	2,864	32,417	8,602	172	593	765
Elk Cr. Herrick	72	341	6,586	1,794	678	0	678
Lower Carpenter Cr.	125	3,024	34,039	6,392	0	501	501
N.Fk. Palouse River	159	3,919	44,254	10,224	178	228	406
Lower W.Fk. St. Maries	130	940	10,788	2,931	0	397	397
Lick Cr.	1	1,744	16,413	3,359	0	340	340
Little Sand Cr.	163	1,712	6,987	2,186	58	146	204
Bottle Cr.	37	1,359	20,142	4,595	139	0	139
Little Carpenter Cr.	126	409	2,490	1,040	82	0	82
Upper W.Fk. Emerald	127	1,752	13,377	5,287	0	0	0
Forest Total		79,739	1,111,412	261,353	21,736	32,052	53,788
National Forest		34,616	385,499	96,484	8,532	11,713	20,245
Other		45,123	725,913	164,869	13,204	20,339	33,543

VI SIGNIFICANCE OF FINDINGS

Region One has 29.5 billion board feet of Douglas-fir sawtimber (Scribner Rule). In Table II on eight national forests involving 9.7 billion board feet of Douglas-fir sawtimber, the loss over a three-year period by the Douglas-fir beetle infestation was 333 million board feet. The 1952 attacks accounted for 177.5 million board feet of this total.

Table VI shows the acreage of the Douglas-fir type and the volume of sawtimber on national forest land by forests. Table VII gives the same data for all other lands by states and counties. Table VIII summarizes the Douglas-fir volume by states in Region One.

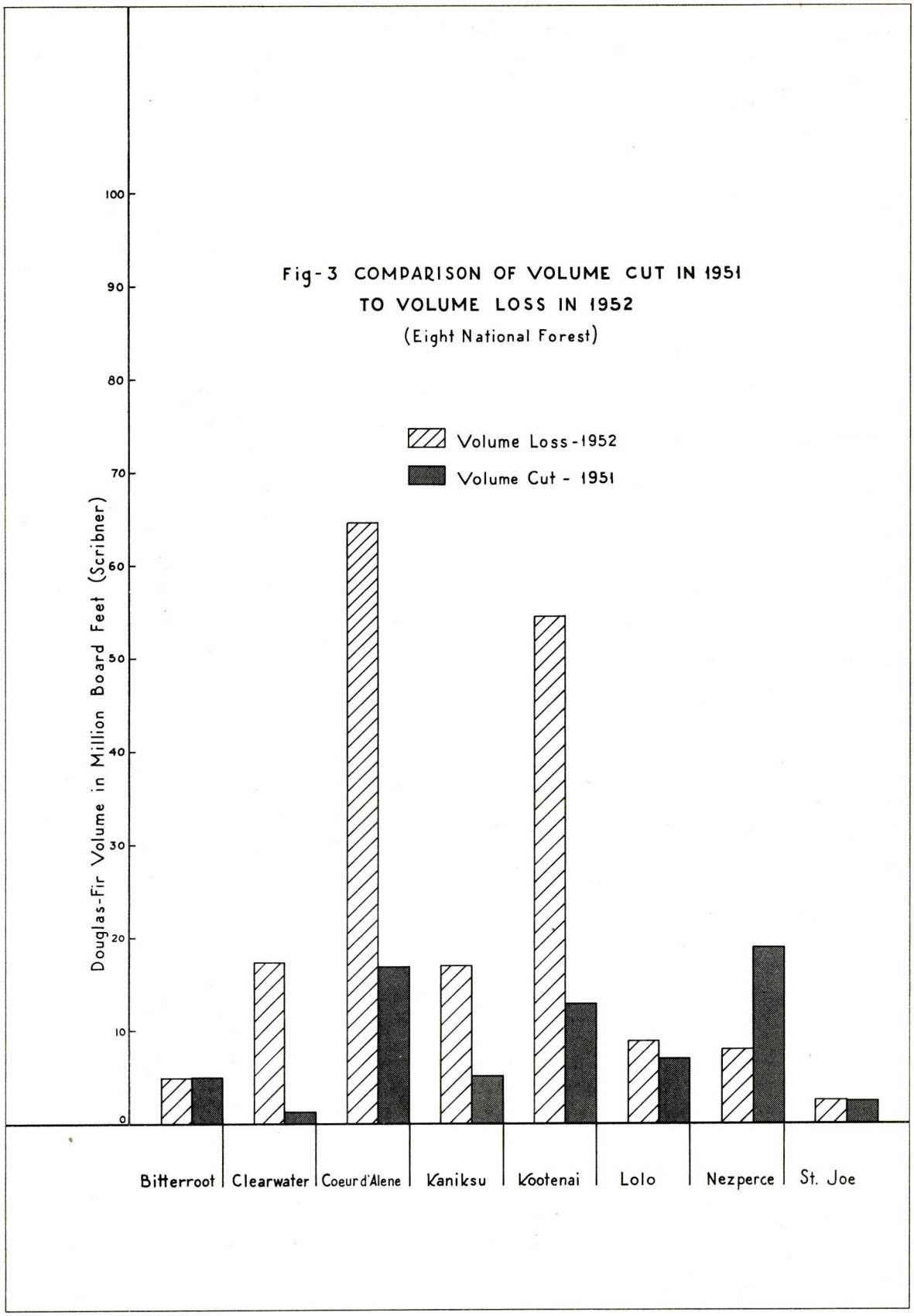
The Region One timber cut report for calendar year 1951 shows that out of a total sawlog cut of 376 million board feet on national forest lands, the Douglas-fir cut was 98 million, or 26 percent of the total. A comparison of the 1952 beetle kill with the Douglas-fir sawtimber cut for the eight forests in Table I reveals a disturbing situation: (Figures in thousand board feet)

Forest	1952 Beetle Kill	1951 Sawtimber Cut
Bitterroot	4,746	6,340
Clearwater	16,896	1,381
Coeur d'Alene	64,796	16,724
Kaniksu	17,046	6,491
Kootenai	54,425	13,071
Lolo	8,742	6,935
Nezperce	8,125	18,905
St. Joe	2,492	2,497
TOTAL	177,268	72,344

The total volume losses due to the beetle kill for 1952 as compared with the 1951 sawtimber cut for the eight forests shows that the Douglas-fir beetle is destroying merchantable timber stands, two and a half times as fast as they are being cut. The estimated 1952 cut shows a similar comparison. Figure 3 shows graphically the relation between volume loss and cut on these forests.

It is estimated that less than 5 percent of the infested timber volumes are being utilized. No program exists for control of the beetle despite the large losses of valuable sawtimber. The need for a control and salvage program is not only evidenced by the existing killed volumes over the region but by the trend of the present infestation. The data presented indicates that continued heavy killing can be expected in the mature Douglas-fir stands of this region. The large areas of infested timber on many forests will again serve as staging points for further widespread killing.

Table V shows the volume losses in each analyzed compartment together with the total Douglas-fir volume threatened. For an action program of logging for control and salvage these volumes should be considered.



Agriculture – Missoula

Table VII. Summary of Douglas-fir data on national forest lands, by forests

November 7, 1952

Forest	Status	Area of Douglas-fir type			Volume of Douglas-fir						Grand total
					Douglas-fir type			Other types			
		Saw-timber	Other	Total	Saw-timber	Other	Total	Saw-timber	Other	Total	
		Acres			Thousand board feet, Scribner						
Cabinet	Nonreserved	2,154	22,075	24,229	11,024	18,778	29,802	291,328	118,553	409,881	439,683
	Reserved	131	223	354	524	81	605	2,940	3,160	6,100	6,705
	Total	2,285	22,298	24,583	11,548	18,859	30,407	294,268	121,713	415,981	446,388
Clearwater	Nonreserved	23,556	21,340	44,896	133,922	15,769	149,691	486,733	5,870	492,603	642,294
	Reserved	3,492	2,449	5,941	16,846	3,822	20,668	22,969	850	23,819	44,487
	Total	27,048	23,789	50,837	150,768	19,591	170,359	509,702	6,720	516,422	686,781
Coeur d'Alene	Nonreserved	106,852	81,786	188,638	793,175	61,370	854,545	169,486	25,363	194,849	1,049,394
	Reserved	-	-	-	-	-	-	549	-	549	549
	Total	106,852	81,786	188,638	793,175	61,370	854,545	170,035	25,363	195,398	1,049,943
Flathead	Nonreserved	27,084	6,559	33,643	123,518	5,582	129,100	775,220	47,071	822,291	951,391
	Reserved	22,125	5,271	27,396	99,796	3,746	103,542	146,156	8,679	154,835	258,377
	Total	49,209	11,830	61,039	223,314	9,328	232,642	921,376	55,750	977,126	1,209,768
Kaniksu	Nonreserved	83,814	136,719	220,533	525,262	142,786	668,048	228,545	58,720	287,265	955,313
	Reserved	-	10	10	-	-	-	1,830	11	1,841	1,841
	Total	83,814	136,729	220,543	525,262	142,786	668,048	230,375	58,731	289,106	957,154
Kootenai	Nonreserved	6,673	13,866	20,539	35,805	11,011	46,816	754,236	257,494	1,011,730	1,058,546
	Reserved	-	-	-	-	-	-	524	857	1,381	1,381
	Total	6,673	13,866	20,539	35,805	11,011	46,816	754,760	258,351	1,013,111	1,059,927
Lolo	Nonreserved	45,641	84,696	130,337	292,647	61,712	354,359	522,344	75,362	597,706	952,065
	Reserved	16,521	1,941	18,462	110,765	547	111,312	126,320	3,233	129,553	240,865
	Total	62,162	86,637	148,799	403,412	62,259	465,671	648,664	78,595	727,259	1,192,930
Nez Perce	Nonreserved	142,145	59,685	201,830	850,712	23,185	873,897	1,476,036	70,035	1,546,071	2,419,968
	Reserved	55,120	13,716	68,836	271,927	3,754	275,681	104,228	7,505	111,733	387,414
	Total	197,265	73,401	270,666	1,122,639	26,939	1,149,578	1,580,264	77,540	1,657,804	2,807,382
St. Joe	Nonreserved	9,674	17,646	27,320	62,094	14,709	76,803	252,202	15,971	268,173	344,976
	Reserved	-	-	-	-	-	-	-	-	-	-
	Total	9,674	17,646	27,320	62,094	14,709	76,803	252,202	15,971	268,173	344,976
Nonreserved		447,593	444,372	891,965	2,828,159	354,902	3,183,061	4,956,130	674,439	5,630,569	8,813,630
Reserved		97,389	23,610	120,999	499,858	11,950	511,808	405,516	24,295	429,811	941,619
Subtotal		544,982	467,982	1,012,964	3,328,017	366,852	3,694,869	5,361,646	698,734	6,060,380	9,755,249
Remaining forests											
Bitterroot	Nonreserved	39,440	76,178	115,618	195,372	75,737	271,109	184,191	9,216	193,407	464,516
	Reserved	130,988	81,064	212,052	665,992	109,524	775,516	299,056	13,271	312,327	1,087,843
	Total	170,428	157,242	327,670	861,364	185,261	1,046,625	483,247	22,487	505,734	1,552,359
Beaverhead	Nonreserved	71,348	65,427	136,775	409,735	91,560	501,295	33,490	128,517	162,007	663,302
	Reserved	-	-	-	-	-	-	446	714	1,160	1,160
	Total	71,348	65,427	136,775	409,735	91,560	501,295	33,936	129,231	163,167	664,462
Colville	Nonreserved	107,580	57,140	164,720	714,713	37,413	752,126	298,946	45,232	344,178	1,096,304
	Reserved	-	-	-	-	-	-	670	18	688	688
	Total	107,580	57,140	164,720	714,713	37,413	752,126	299,616	45,250	344,866	1,096,992
Custer	Nonreserved	8,259	22,266	30,525	65,840	16,478	82,318	2,565	3,989	6,554	88,872
	Reserved	-	-	-	-	-	-	1,071	1,830	2,901	2,901
	Total	8,259	22,266	30,525	65,840	16,478	82,318	3,636	5,819	9,455	91,773
Deerlodge	Nonreserved	58,353	173,137	231,490	325,520	196,179	521,699	29,094	66,993	96,087	617,786
	Reserved	166	1,924	2,090	683	2,325	3,008	404	1,544	1,948	4,956
	Total	58,519	175,061	233,580	326,203	198,504	524,707	29,498	68,537	98,035	622,742
Gallatin	Nonreserved	185,085	178,435	363,520	1,157,953	206,522	1,364,475	133,273	62,237	195,510	1,599,985
	Reserved	1,500	400	1,900	9,643	268	9,911	1,964	2,054	4,018	13,929
	Total	186,585	178,835	365,420	1,167,596	206,790	1,374,386	135,237	64,291	199,528	1,573,914
Helena	Nonreserved	74,951	194,579	269,530	383,528	257,043	640,571	37,495	45,572	83,067	723,638
	Reserved	1,200	800	2,000	6,250	357	6,607	268	45	313	6,920
	Total	76,151	195,379	271,530	389,778	257,400	647,178	37,763	45,617	83,380	730,558
Lewis & Clark	Nonreserved	94,299	205,265	299,564	438,488	140,201	578,689	61,145	75,492	136,637	715,326
	Reserved	4,000	1,200	5,200	25,000	625	25,625	22,321	3,571	25,892	51,517
	Total	98,299	206,465	304,764	463,488	140,826	604,314	83,466	79,063	162,529	766,843
Nonreserved		639,315	972,427	1,611,742	3,691,149	1,021,133	4,712,282	780,199	437,248	1,217,447	5,929,729
Reserved		137,854	85,388	223,242	707,568	113,099	820,667	326,200	23,047	349,247	1,169,914
Subtotal		777,169	1,057,815	1,834,984	4,398,717	1,134,232	5,532,949	1,106,399	460,295	1,566,694	7,099,643
Regional nonreserved		1,086,908	1,416,799	2,503,707	6,519,308	1,376,035	7,895,343	5,736,329	1,111,687	6,848,016	14,743,359
Regional reserved		235,243	108,998	344,241	1,207,426	125,049	1,332,475	731,716	47,342	779,058	2,111,533
Regional total		1,322,151	1,525,797	2,847,948	7,726,734	1,501,084	9,227,818	6,468,045	1,159,029	7,627,074	16,854,892

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Source: Forest Survey

Table XIII Summary of Douglas-fir data on lands other than national forest, by state and county

November 7, 1952

State and county	Status	Area of Douglas-fir type: Saw-timber	Area of Douglas-fir type: Other	Area of Douglas-fir type: Total	Volume of Douglas-fir: Douglas-fir type: Saw-timber	Volume of Douglas-fir: Douglas-fir type: Other	Volume of Douglas-fir: Douglas-fir type: Total	Volume of Douglas-fir: Other types: Saw-timber	Volume of Douglas-fir: Other types: Other	Volume of Douglas-fir: Other types: Total	Volume of Douglas-fir: Grand total
		-Acres-			--Thousand board feet, Scribner--						
Idaho 1/											
Benewah	Nonreserved	27,880	29,342	57,222	273,650	15,139	288,789	142,098	11,467	153,565	442,354
Bonner	"	25,834	34,362	60,196	160,991	45,046	206,037	131,270	6,904	138,174	344,211
Boundary	"	12,077	27,299	39,376	87,656	43,452	131,108	74,590	1,618	76,208	207,316
Clearwater	"	75,629	36,711	112,340	349,004	26,222	375,226	1,228,884	9,385	1,238,269	1,613,495
Idaho	"	58,675	15,300	73,975	265,609	5,987	271,596	438,521	4,805	443,326	714,922
Kootenai	"	25,455	37,444	62,899	176,357	52,277	228,634	26,178	57,312	83,490	312,124
Latah	"	48,295	25,381	73,676	215,603	14,322	229,925	361,296	9,643	370,939	600,864
Lewis	"	13,878	10,622	24,500	47,487	5,370	52,857	94,037	6,039	100,076	152,933
Nez Perce	"	17,143	12,260	29,403	56,322	6,225	62,547	94,037	6,039	100,076	162,623
Shoshone	"	9,035	23,890	32,925	55,270	16,320	71,590	176,437	6,352	182,789	254,379
Total		313,901	252,611	566,512	1,687,949	230,360	1,918,309	2,767,348	119,564	2,886,912	4,805,221
Montana (western counties)											
Deerlodge	Nonreserved	-	4,166	4,166	-	1,254	1,254	24	995	1,019	2,273
Flathead	"	959	1,399	2,358	5,083	773	5,856	567,616	72,590	640,206	646,062
	Reserved	11,513	3,008	14,521	65,134	3,562	68,696	257,062	18,950	276,012	344,708
	Total	12,472	4,407	16,879	70,217	4,335	74,552	824,678	91,540	916,218	990,770
Granite	Nonreserved	14,795	83,670	98,465	85,869	65,595	151,464	26,132	6,172	32,304	183,768
Lake	"	129	2,620	2,749	452	1,418	1,870	222,422	51,258	273,680	275,550
Lewis & Clark	"	4,436	14,822	19,258	18,425	9,102	27,527	33,409	3,277	36,686	64,213
Lincoln	"	265	5,060	5,325	1,684	4,177	5,861	516,896	62,387	579,283	585,144
Mineral	"	111	2,375	2,486	420	2,062	2,482	57,632	17,841	75,473	77,955
Missoula	"	14,993	43,462	58,455	77,109	24,535	101,644	551,159	67,650	618,809	720,453
Powell	"	23,424	109,304	132,728	99,443	63,773	163,216	166,686	16,886	183,572	346,788
Ravalli	"	8,456	14,147	22,603	41,371	9,985	51,356	77,982	4,476	82,458	133,814
Sanders	"	426	6,984	7,410	3,430	5,664	9,094	287,052	65,719	352,771	361,865
Silver Bow	"	13	12,904	12,917	52	4,412	4,464	9	558	567	5,031
	Nonreserved	68,007	300,913	368,920	333,338	192,750	526,088	2,507,019	369,809	2,876,828	3,402,916
	Reserved	11,513	3,008	14,521	65,134	3,562	68,696	257,062	18,950	276,012	344,708
	Total	79,520	303,921	383,441	398,472	196,312	594,784	2,764,081	388,759	3,152,840	3,747,624
Montana (eastern counties)											
	Nonreserved	124,486	377,179	501,665	708,827	610,856	1,319,683	81,980	75,657	157,637	1,477,320
	Reserved	6,400	2,900	9,300	33,036	1,991	35,027	10,268	1,607	11,875	46,902
	Total	130,886	380,079	510,965	741,863	612,847	1,354,710	92,248	77,264	169,512	1,524,222
Total	Nonreserved	192,493	678,092	870,585	1,042,165	803,606	1,845,771	2,588,999	445,466	3,034,465	4,880,236
	Reserved	17,913	5,908	23,821	98,170	5,553	103,723	267,330	20,557	287,887	391,610
	Total	210,406	684,000	894,406	1,140,335	809,159	1,949,494	2,856,329	466,023	3,322,352	5,271,846
Washington 1/	Nonreserved	190,040	244,779	434,819	1,177,644	214,130	1,391,774	992,125	206,570	1,198,695	2,590,469
Regional total	Nonreserved	696,434	1,175,482	1,871,916	3,907,758	1,248,096	5,155,854	6,348,472	771,600	7,120,072	12,275,926
	Reserved	17,913	5,908	23,821	98,170	5,553	103,723	267,330	20,557	287,887	391,610
	Total	714,347	1,181,390	1,895,737	4,005,928	1,253,649	5,259,577	6,615,802	792,157	7,407,959	12,667,536
Regional total, natl. forest & other		2,036,498	2,707,187	4,743,685	11,732,662	2,754,733	14,487,395	13,083,847	1,951,186	15,035,033	29,522,428

1/ No reserved "other" in North Idaho and Northeast Washington.

Agriculture – Missoula

Source: Forest Survey

TABLE VIII

Summary of Forest Survey Douglas-Fir Volume by States

Region One

Million Board Feet - Scribner

States	Status	Ownership				Total MM Bd. Ft.	Per-Cent
		National Forest		Other Owners			
		MM Bd. Ft.	%	MM Bd.Ft.	%		
Idaho	Nonreserved	5,330		4,805		10,135	
	Reserved	1,732				1,732	
	Total	7,062	41.9	4,805	38.0	11,867	40.2
Montana (West)	Nonreserved	3,713		3,403		7,116	
	Reserved	302		345		647	
	Total	4,015	23.8	3,748	29.6	7,763	26.3
Montana (East)	Nonreserved	4,112		1,477		5,589	
	Reserved	77		47		124	
	Total	4,189	24.9	1,524	12.0	5,713	19.3
Washington	Nonreserved	1,588		2,590		4,178	
	Reserved	1				1	
	Total	1,589	9.4	2,590	20.4	4,179	14.2
Total	Nonreserved	14,743		12,275		27,018	
	Reserved	2,112		392		2,504	
	Total	16,855	100.0	12,667	100.0	29,522	100.0
	Percent	57.4		42.6		100.0	

Source: Forest Survey (Revised)

VII. RECOMMENDED PLAN OF ACTION

The plan of action calls for an aggressive control and salvage program by logging. Logging out the infested timber prior to emergence aims to control the Douglas-fir beetle.

The success of a control program by logging depends largely upon the participation and ingenuity of the local land managers. A working knowledge of the entomological situation is needed. These facts will be interrelated in and between drainage areas. Not only the percentage of loss, but also the total volume of the Douglas-fir sawtimber to be protected and the potential of the infestation should serve as guides in developing the control plan.

Action items which may be necessary aids in the control of the Douglas-fir beetle on logging operations are as follows:

1. Host material cut or bulldozed off right-of-ways during road construction should be removed or treated prior to beetle emergence.

2. The removal or treating of tops and cull logs left by logging may be necessary. Tree-length skidding may be practical with the tops treated or burned at the landing.

3. Unless expected control has been obtained prior to the flight period of the Douglas-fir beetle, sufficient green sawtimber should be felled to serve as host material for new attacks. The trees should remain in the woods until after the attack period.

4. Chemical control should be investigated and possibly considered as a practical measure for controlling small spots either isolated or on the periphery of the logging chance.

Access Roads

The infestations are widespread. The volume of infested Douglas-fir per acre is relatively light. Ordinarily, accumulated volumes of salvable dead timber are too low to permit economic logging, especially so when main haul roads must be charged against the operation. Even if main haul roads are constructed at no charge to the operation, cutting of greater volumes than that infested or salvable is necessary to carry the remaining costs of logging, but to a lesser extent. The main haul road system needed for control of the Douglas-fir beetle as given in Table IX does not differentiate between Forest Service and operator construction.

Roads which are also included in the spruce control program are so indicated. The proposed roads in Table IX express only the needs for the analyzed compartments on the six national forests. Their locations are shown on the attached maps.

Roads were not planned to serve compartments showing no 1952 infestation even though salvage timber could be logged. The volumes of infested and beetle-killed Douglas-fir which may be salvaged over these roads as well as over existing roads are summarized by forests in Table X. These amounts are shown by road systems in Table IX.

TABLE IX

Main Haul Roads Needed for Early Control of the Douglas-Fir Bark Beetle

Region One

CLEARWATER NATIONAL FOREST

Road No.	Road Name	Road Class	Road Miles	Type of Construction	Compartments Served	Douglas-Fir Killed-Thousand Bd.Ft. 1948-51	Douglas-Fir Killed-Thousand Bd.Ft. 1952	Douglas-Fir Killed-Thousand Bd.Ft. Total	All** Species Volume Thous. Bd. Ft.
Canyon Working Circle									
476	Clearwater River	DD-16S	8.0	Heavy)					
476	Clearwater River	DD-16S	2.0	Heavy)					
516	Skull Cr.	EE-14	10.0	Heavy)	25,30	1,699	1,569	3,268***	304,686
518	Quartz Cr.	EE-14	10.0	Heavy)					
518A	Grizzly Cr.	EE-14	5.0	Heavy)					
	River Face	DD-16S	10.0	Heavy.	28	3,152	1,014	4,166	159,612
W. C. Total			45.0			4,851	2,583	7,434	464,298
Pierce Working Circle									
663	Gold Cr.-Hemlock	EE-14	5.0	Medium)					
287	Glenwood-Lolo Cr.	EE-14	4.0	Heavy)	45	1,654	147	1,801	89,132
287B	Lolo Cr. Spur	EE-14	2.0	Heavy)					
664	Austin L. O.	EE-14	11.0	Heavy	47	4,370	1,058	5,428	61,999
529	Eldorado Cr. *	DD-16S	15.0	Heavy)	49	17,245	9,211	26,456	242,438
529A	Dollar Cr. *	EE-12S	2.0	Heavy)					
287D	Mud Cr.	EE-14	4.0	Medium	48	2,203	1,179	3,382	42,779
	Yakus	EE-14	5.0	Medium	50	4,319	4,030	8,349	67,401
W. C. Total			48.0			29,791	15,625	45,416	503,749
Forest Totals			0.0	Light					
			14.0	Medium					
			79.0	Heavy					
			93.0			34,642	18,208	52,850	968,047
Existing Roads					29	371	638	1,009****	91,337

* Also included in Spruce Bark Beetle Control Road Program.
** All Species Volumes contained in areas having 5% or more Douglas-fir by volume within indicated compartments.
*** White pine killed 1951-52, 5,730 M. Bd. Ft.
****White pine killed 1951-52, 221 M. Bd. Ft.

TABLE IX

Main Haul Roads Needed for Early Control of the Douglas-Fir Bark Beetle

Region One

COEUR D'ALENE NATIONAL FOREST

Road No.	Road Name	Road Class	Miles	Type of Construction	Compartments Served	Douglas-Fir Killed-Thousand Bd.Ft. 1950-51	1952	Total	All* Species Volume Thous. Bd. Ft.
Coeur d'Alene Working Circle									
413	Copper Ridge	EE-14	11.0	Medium	13	1,066	924	1,990	59,078
209	N.F. Coeur d'Alene	DD-16S	6.0	Heavy)					
798	LaVerne Cr.	EE-14	9.0	Medium)	7,14,15,16	3,666	4,279	7,945	218,772
209E	Bootjack Cr.	EE-14	9.0	Medium)					
794	Iron Cr.	EE-14	4.0	Medium	5	1,242	1,316	2,558	53,128
209D	Picnic Cr.	EE-14	2.0	Medium	7	(1,486)	(1,127)	(2,613)	(43,986)
	Upper Cougar	EE-14	8.0	Medium	45	3,629	2,474	6,103	120,733
	Simmons Draw	EE-14	7.0	Medium	81	514	63	577	19,024
209F	Tom Lavin Cr.	EE-14	1.5	Medium	3	334	477	811	15,875
Forest Totals			0.0	Light					
			51.5	Medium					
			6.0	Heavy					
			57.5			5,719	4,330	10,049	208,760
Existing Roads					6,42,93,) 1,19,22,) 23,18,69)	7,177	6,328	13,505	311,643

* All species volumes contained in areas having 5% or more Douglas-fir by volumes within indicated compartments.

TABLE IX

Main Haul Roads Needed for Early Control of the Douglas-Fir Bark Beetle

Region One

KANIKSU NATIONAL FOREST

Road					Compartments Served	Douglas-Fir Killed-Thousand Bd.Ft.			All* Species Volume Thous. Bd. Ft.
No.	Name	Class	Miles	Type of Construction		1950-51	1952	Total	
Priest Lake Working Circle									
	North Baldy	EE-14	2.5	Medium	326	106	159	265	26,525
	Blickensderfer	EE-14	4.0	Medium	341	230	160	390	53,739
W. C. Total			6.5			336	319	655	80,264
Sandpoint Working Circle									
	Johnson Cr.	EE-14	5.0	Medium	705	206	196	402	13,160
Forest Totals			11.5	Medium		542	515	1,057	93,424
Existing Roads					162,168,169) 174,180,183) 184,318,323) 324,334,603) 707,737)	1,706	1,477	3,183	152,522

*All species volumes contained in areas having 5% or more Douglas-fir by volume within indicated compartments.

TABLE IX

Main Haul Roads Needed for Early Control of the Douglas-Fir Bark Beetle

Region One

KOOTENAI NATIONAL FOREST

Road					Compartments Served	Douglas-Fir Killed-Thousand Bd.Ft.			All** Species Volume Thous. Bd. Ft.
No.	Name	Class	Miles	Type of Construction		1948-51	1952	Total	
Libby Working Circle									
755	Doak Cr.	EE-14	5.0	Medium	79	325	0	325	29,484
	Blue	EE-14	3.0	Medium	78	1,378	1,234	2,612	24,555
176	Yaak River-E. Side*	EE-12S	6.0	Medium)	50,54	746	665	1,411	102,812
752	O'Brien Cr. *	EE-12S	2.0	Medium)					
Forest Totals			16.0	Medium		2,449	1,899	4,348	156,851
Existing Roads					104,43	1,488	817	2,305	121,286

* Also included in Spruce Bark Beetle Control Road Program.

** All species volumes contained in areas having 5% or more Douglas-fir by volume within indicated compartments.

TABLE IX

Main Haul Roads Needed for Early Control of the Douglas-Fir Bark Beetle

Region One

NEZPERCE NATIONAL FOREST

Road No.	Road Name	Road Class	Miles	Type of Construction	Compartments Served	Douglas-Fir Killed-Thousand Bd.Ft. 1948-51	Douglas-Fir Killed-Thousand Bd.Ft. 1952	Douglas-Fir Killed-Thousand Bd.Ft. Total	All* Species Volume Thous. Bd. Ft.
Middle Fork Working Circle									
445	Canyon Cr.	EE-14	12.0	Medium)	11	3,731	1,635	5,366	83,848
659	Smith Cr.	EE-14	5.6	Medium)					
659	Smith Cr.	EE-14	10.5	Medium	10	4,278	2,359	6,637	98,042
658	Syringa Cr.	EE-14	2.0	Medium	8	1,459	491	1,950	42,375
W. C. Total			30.1			9,468	4,485	13,953	224,265
Salmon River Working Circle									
221	Grangeville-Salmon R.	DD-16S	10.1	Medium	82	1,319	243	1,562	73,584
221	Grangeville-Salmon R.	DD-16S	5.0	Medium)					
221	Grangeville-Salmon R.	DD-16S	7.5	Medium)	84	861	531	1,392	165,196
465	Slate Cr.	DD-16S	14.0	Heavy)					
279	Cove Placers	EE-12S	8.0	Medium)	79	1,530	948	2,478	77,082
	Upper Cove Placers	EE-12S	10.0	Medium)					
642	Skookum Chuck	EE-12S	21.0	Medium	82	(1,319)	(242)	(1,562)	(73,584)
W. C. Total			75.6			3,710	1,722	5,432	315,862
Forest Totals			0.0	Light					
			91.7	Medium					
			14.0	Heavy					
			105.7			13,178	6,207	19,385	540,127

*All species volume contained in areas having 5% or more Douglas-fir by volume within indicated compartments.

TABLE IX

Main Haul Roads Needed for Early Control of the Douglas-fir Bark Beetle

Region One

ST. JOE NATIONAL FOREST

Road No.	Name	Class	Miles	Type of Construction	Compartments Served	Douglas-Fir Killed-Thousand Bd.Ft. 1948-51	1952	Total	All** Species Volume Thous. Bd. Ft.
Lower St. Joe Working Circle									
321	Clarkia-Marble Cr.*	EE-12S	7.0	Heavy	84	0	1,281	1,281	50,757
321B	Norton Cr. *	EE-12S	3.0	Heavy	84	(0)	(1,281)	(1,281)	(50,757)
Upper St. Joe Working Circle									
	Turner Cr.	EE-14	2.0	Heavy	39	960	410	1,370	36,558
Fishhook Cr. Working Circle									
	Siwash Peak	EE-14	7.0	Light	47	207	626	833	34,962
St. Maries Working Circle									
490	Lt. Carpenter Cr.	EE-14	4.0	Light	126	0	82	82	2,490
380	W. Fk. Emerald Cr.	EE-14	4.0	Light	128	0	2,345	2,345	22,958
447	Palouse River	EE-14	6.0	Medium	131	776	3,606	4,382	50,911
393	Papoose Cr.	EE-14	3.5	Medium	144	1,678	207	1,885	16,418
W. C. Total			17.5			2,454	6,240	8,694	92,777

* Also included in Spruce Bark Beetle Control Road Program.

** All species volumes contained in areas having 5% or more Douglas-fir by volume within indicated compartments.

TABLE IX

Main Haul Roads Needed for Early Control of the Douglas-Fir Bark Beetle

Region One

ST. JOE NATIONAL FOREST (Continued)

Road					Compartments Served	Douglas-Fir Killed--Thousand Bd.Ft.			All* Species Volume Thous. Bd. Ft.
No.	Name	Class	Miles	Type of Construction		1948-51	1952	Total	
Potlatch Working Circle									
767	N.Fk. Palouse River	EE-14	7.0	Light	159	228	178	406	44,254
377	Palouse Divide	EE-14	6.5	Light	155	1,683	279	1,962	43,129
370	Big Cr. (Palouse)	EE-14	8.0	Light	154	1,303	697	2,000	25,856
788	Jerome Cr.	EE-14	3.5	Light	158	1,073	1,398	2,471	20,744
W. C. Total			25.0			4,287	2,552	6,839	133,983
Forest Totals			40.0	Light					
			9.5	Medium					
			12.0	Heavy					
			61.5			7,908	11,109	19,017	349,037
Existing Roads					185,187) 190,191) 171,163) 116,115,72)	10,488	20,345	30,833	626,195

*All species volumes contained in areas having 5% or more Douglas-fir by volume within indicated compartments.

TABLE IX

SUMMARY of Main Haul Roads Needed for Early Control of the Douglas-Fir Bark Beetle

Region One

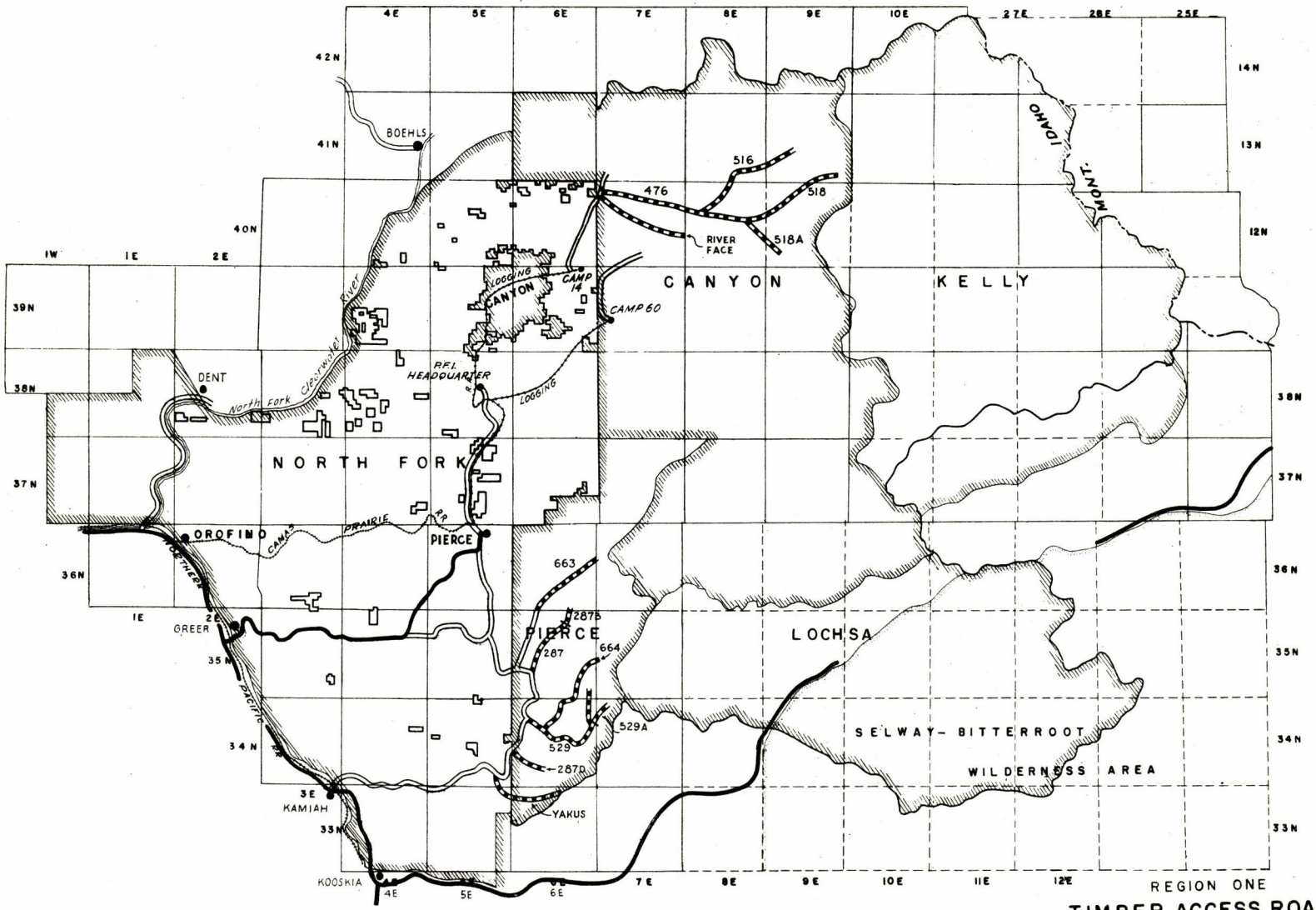
Forest	Type of Construction			Totals	Miles Which Are Also Included in the Spruce Bark Beetle Control Road Program
	Light	Medium	Heavy		
	Miles	Miles	Miles		
Clearwater	0.0	14.0	79.0	93.0	17.0
Coeur d'Alene	0.0	51.5	6.0	57.5	0
Kaniksu	0.0	11.5	0.0	11.5	0
Kootenai	0.0	16.0	0.0	16.0	8.0
Nezperce	0.0	91.7	14.0	105.7	0
St. Joe	40.0	9.5	12.0	61.5	10.0
Total	40.0	194.2	111.0	345.2	35.0

TABLE X

Summary by Volumes of Infested and Beetle Killed Douglas-Fir Which May Be Salvaged Over Existing and Roads Proposed for Construction in the Douglas-Fir Bark Beetle Control Program

Forest	Volumes of Beetle-Infested and Killed Douglas-Fir Which May Be Salvaged - In Thousands Bd. Ft.			Volume of All Species which May Be Hauled Over Proposed Roads - Thousand Bd. Ft.*
	Over Proposed Roads	Over Existing Roads	Total	
Clearwater	52,850	1,009	53,859	968,047
Coeur d'Alene	19,984	13,505	33,489	486,610
Kaniksu	1,057	3,183	4,240	93,424
Kootenai	4,348	2,305	6,653	156,851
Nezperce	19,385	-	19,385	540,127
St. Joe	19,017	30,833	49,850	349,037
Total	116,641	50,835	167,476	2,594,096

*All species volumes contained in areas having 5% or more Douglas-fir by volume within analyzed compartments served by the proposed roads.



REGION ONE

TIMBER ACCESS ROADS

CLEARWATER NATIONAL FOREST

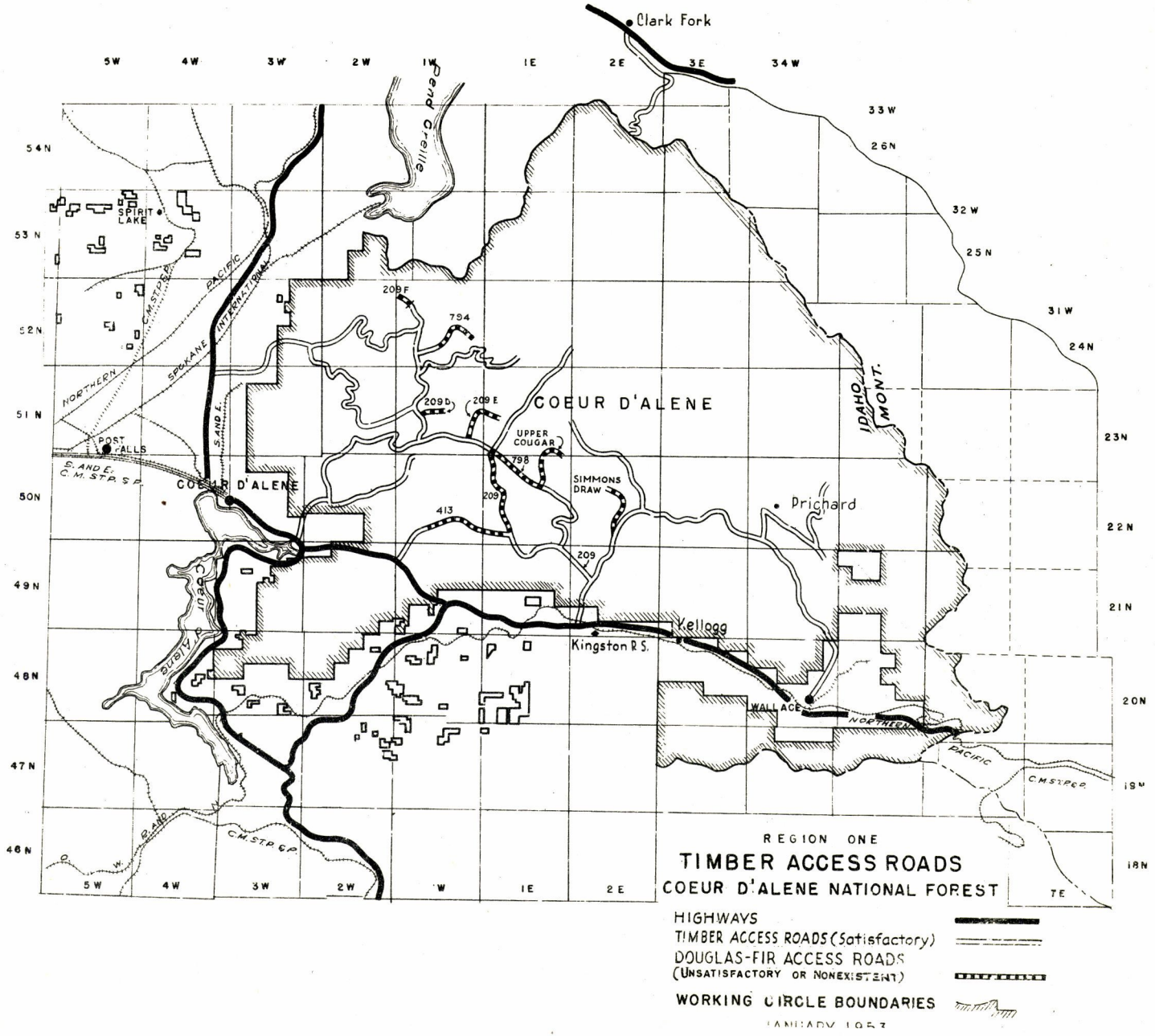
HIGHWAYS

CONNECTING ROADS

DOUGLAS-FIR ACCESS ROADS
(Unsatisfactory or Non-Existing)

WORKING CIRCLE BOUNDARIES

JANUARY 1953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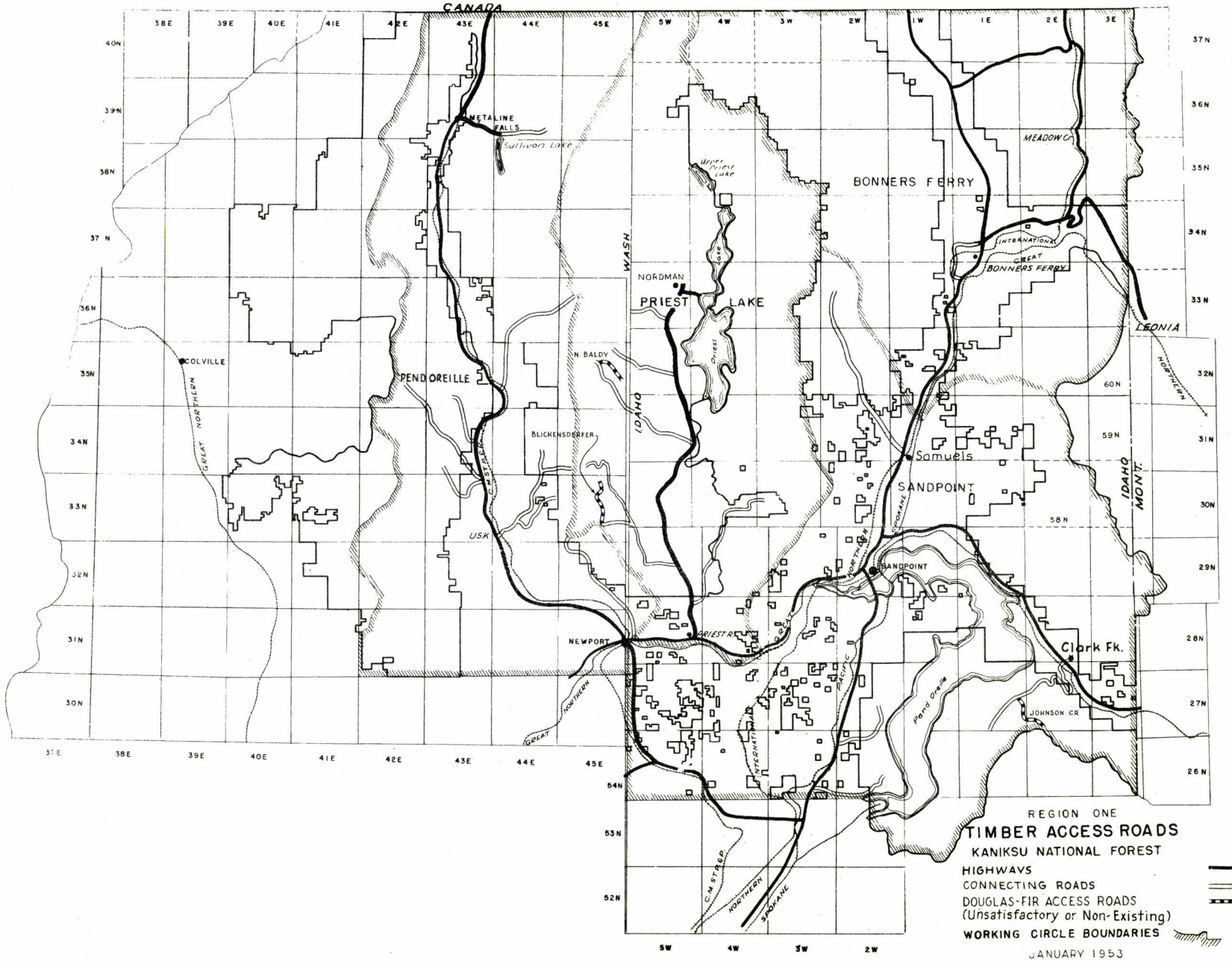
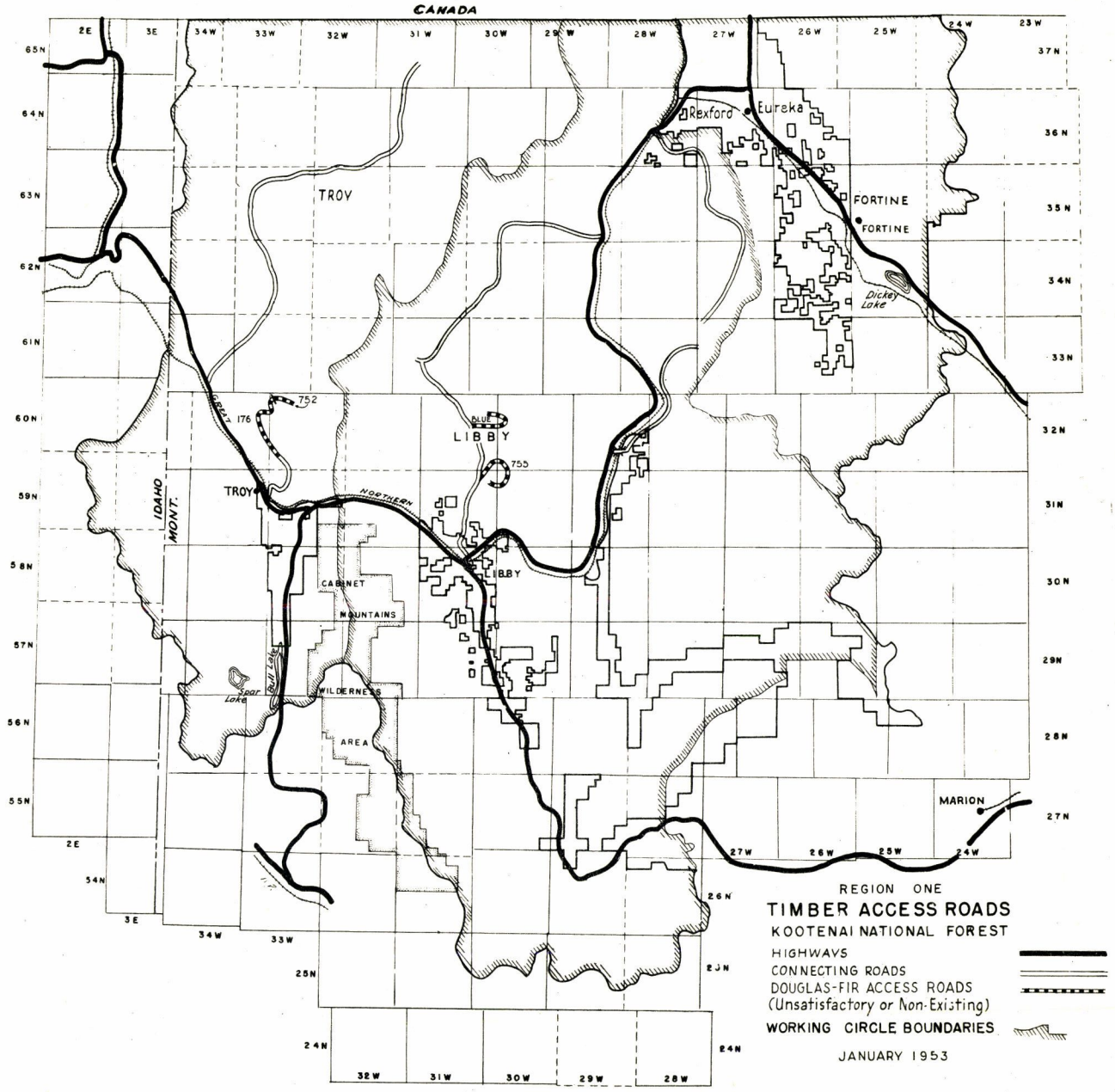
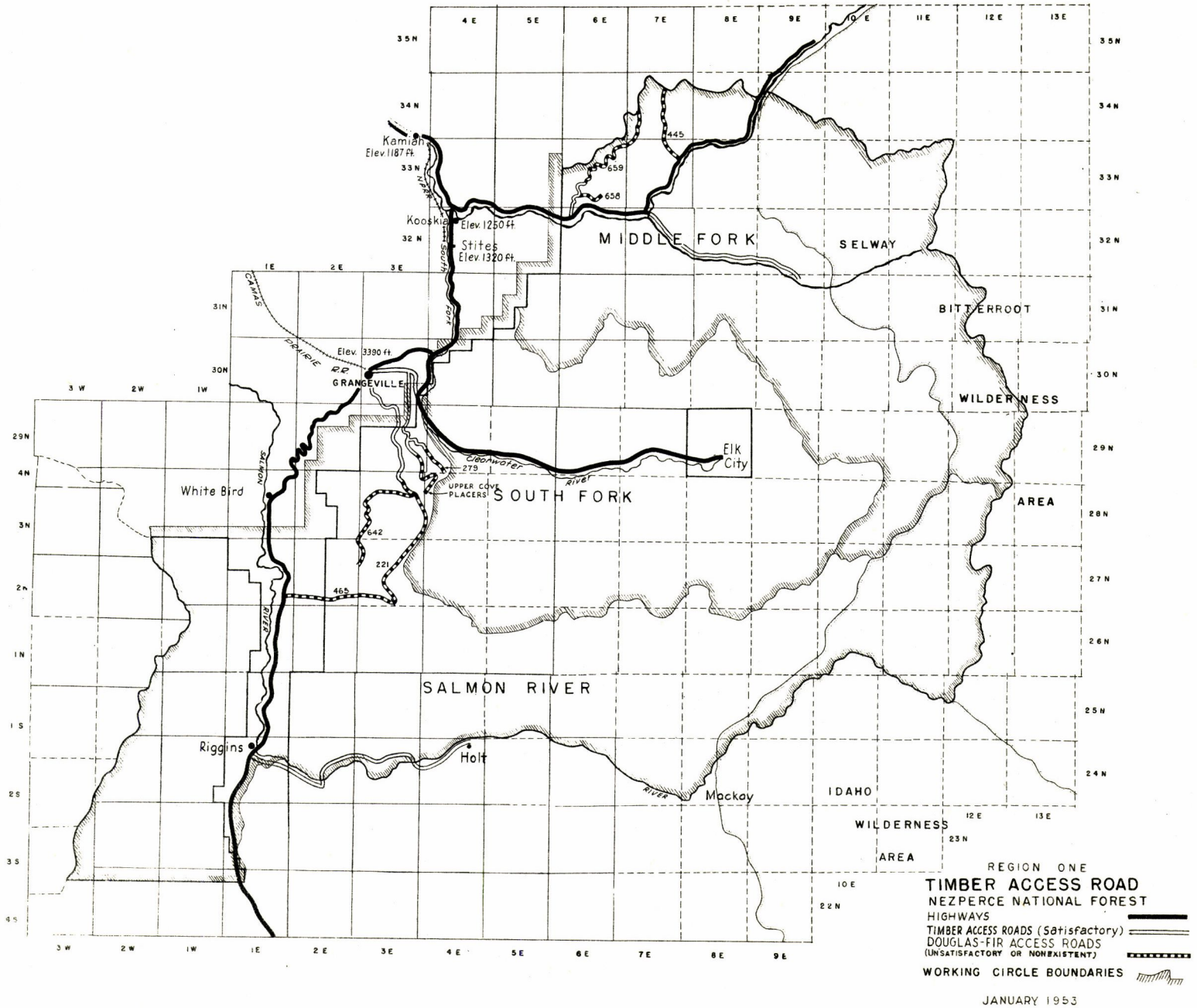
Pend Oreille
SPIRIT LAKE
POST FALLS
S. AND E.
C.M. ST.P. & P.
NORTHERN PACIFIC
SPOKANE INTERNATIONAL
C.M. ST.P. & P.
S. AND E.
COEUR D'ALENE
COEUR D'ALENE
208 F
794
209 D
209 E
UPPER COUGAR
798
209
SIMMONS DRAW
413
209
Prichard
IDAHO MONT.
Kellogg
Kingston R.S.
WALLACE
NORTHERN PACIFIC
C.M. ST.P. & P.
St. Joe
St. Maries
St. Maries
C.M. ST.P. & P.
5W
4W
3W
2W
1W
1E
2E
3E
4E
54N
53N
52N
51N
50N
49N
48N
47N
46N
33W
26N
32W
25N
31W
24N
23N
22N
21N
20N
19N
18N
REGION ONE
TIMBER ACCESS ROADS
COEUR D'ALENE NATIONAL FOREST
HIGHWAYS
TIMBER ACCESS ROADS (Satisfactory)
DOUGLAS-FIR ACCESS ROADS
(UNSATISFACTORY OR NONEXISTENT)
WORKING CIRCLE BOUNDARIES
JANUARY 1953


CANADA
METALINE FALLS
Sullivan Lake
BONNERS FERRY
MEADOWC
INTERNATIONAL
GREAT
BONNERS FERRY
NORDMAN
PRIEST LAKE
Upper Priest Lake
Priest Lake
WASH
IDAHO
COLVILLE
PEND OREILLE
N. BALDY
BLICKENSDERFER
GREAT NORTHERN
C.M.ST.P.&P.
USK
LEONIA
NORTHERN
Samuels
SANDPOINT
NORTHERN PACIFIC
SPOKANE
IDAHO
MONT.
BANDPOINT
NEWPORT
PRIEST R.
Clark Fk.
Pend Oreille
JOHNSON CR
INTERNATIONAL
GREAT NORTHERN
C.M.ST.P.&P.
NORTHERN PACIFIC
SPOKANE
REGION ONE
TIMBER ACCESS ROADS
KANIKSU NATIONAL FOREST
HIGHWAYS
CONNECTING ROADS
DOUGLAS-FIR ACCESS ROADS
(Unsatisfactory or Non-Existing)
WORKING CIRCLE BOUNDARIES
JANUARY 1953


CANADA
REGION ONE
TIMBER ACCESS ROADS
KOOTENAI NATIONAL FOREST
HIGHWAYS
CONNECTING ROADS
DOUGLAS-FIR ACCESS ROADS
(Unsatisfactory or Non-Existing)
WORKING CIRCLE BOUNDARIES
JANUARY 1953
TROY
LIBBY
FORTINE
Rexford
Eureka
MARION
IDAHO
MONT.
NORTHERN
CABINET
MOUNTAINS
WILDERNESS
AREA
Spar Lake
Bull Lake
Dickey Lake
752
176
755



REGION ONE

TIMBER ACCESS ROAD

NEZPERCE NATIONAL FOREST

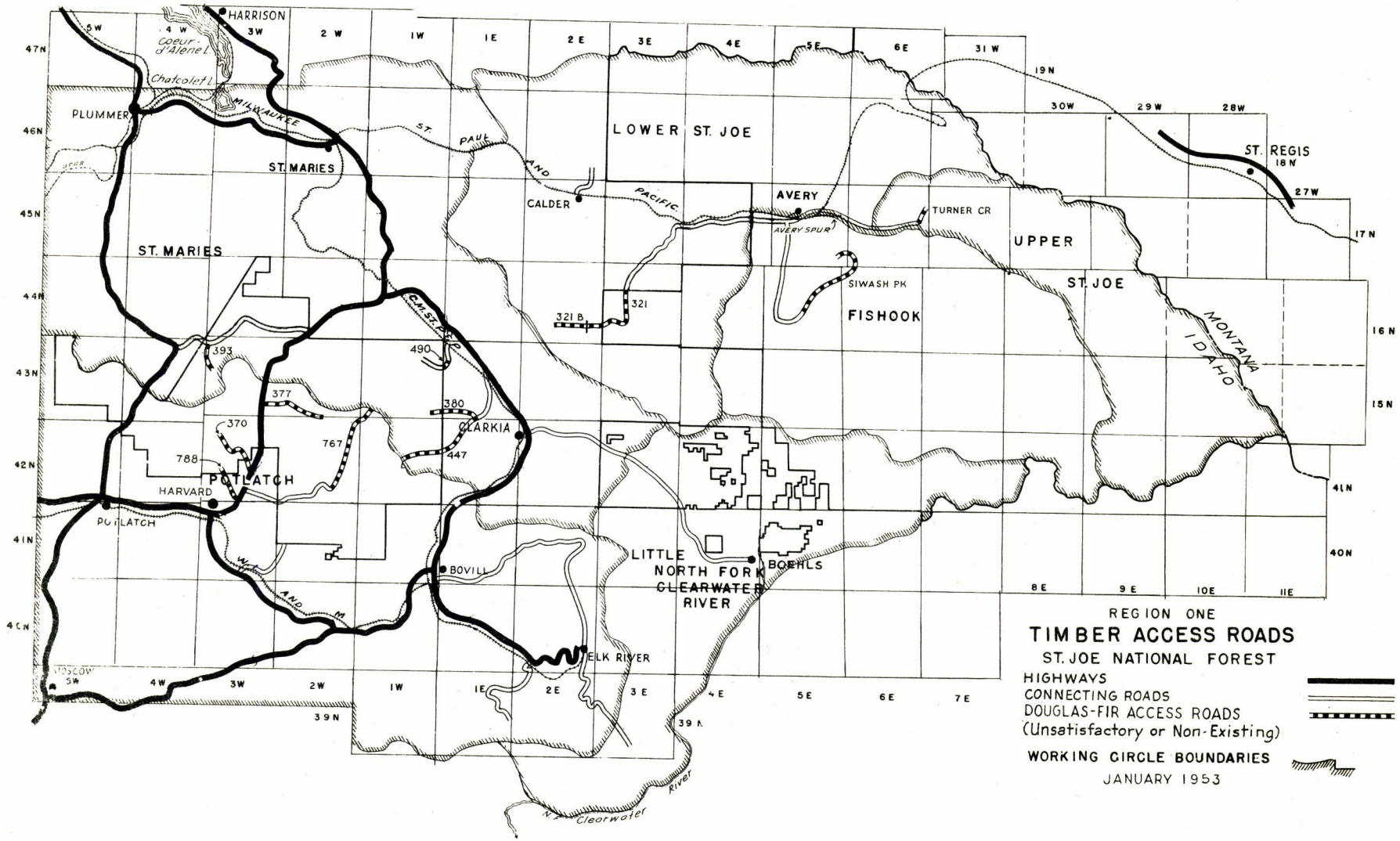
HIGHWAYS

TIMBER ACCESS ROADS (Satisfactory)

DOUGLAS-FIR ACCESS ROADS (UNSATISFACTORY OR NONEXISTENT)

WORKING CIRCLE BOUNDARIES

JANUARY 1953



REGION ONE

TIMBER ACCESS ROADS

ST. JOE NATIONAL FOREST

HIGHWAYS

CONNECTING ROADS

DOUGLAS-FIR ACCESS ROADS
(Unsatisfactory or Non-Existing)

WORKING CIRCLE BOUNDARIES

JANUARY 1953

PLANS FOR SURVEYS, COMPARTMENT ANALYSIS, SALES PREPARATION, PROPOSED DOUGLAS-FIR BEETLE PROJECT AND STUDY ON LOGGING FOR CONTROL

Surveys and Compartment Analysis

Since it has been determined that heavy Douglas-fir losses are occurring, future plans should consider doing additional survey and analysis work during F. Y. 1954. It is estimated that 100 additional compartments are in need of surveys and analysis. These surveys are needed on the six forests studied and in addition, the Lolo National Forest where infestations have been recorded by the aerial survey. A total of $40,000 is requested, of which $25,000 is needed on aerial mapping and surveys, and $15,000 for compartment analysis work.

Sales Preparation

Funds will be needed in order to prepare and administer sales in selected areas for the removal of beetle-infested Douglas-fir. Regular funds are not adequate to prepare and administer this more selective type of sales work and still maintain the forest cut. For example, the Coeur d'Alene National Forest has an annual cut of about 70 million board feet of which 17 million is, normally, Douglas-fir sawlogs. The Douglas-fir cut could be increased to 30 million board feet in the next fiscal year if additional sales funds were available. The major portion of the 30 million board feet would come from control and salvage sales in the infested drainages. With a volume loss of 65 million on the Coeur d'Alene Forest in 1952 due to the Douglas-fir beetle attacks a shift to larger Douglas-fir cuts is vital if the resource is to be protected. Adequate financing is necessary for the success of such a salvage and control program.

For the western forests in F. Y. 1954 it is estimated that 40 million board feet of Douglas-fir sawtimber could be removed from salvage and control sales over existing and operator-built roads. Such a cutting program requires an estimated $20,000 of additional sales preparation and administration funds.

Proposed Insect Control Project - $50,000 - F. Y. 1954

1. Project name: Douglas-fir beetle in northern Idaho.

2. Proposed duration field control work (inclusive dates): July 1, 1953, to June 30, 1954.

3. Tree species affected: Douglas-fir.

4. Insect responsible: Douglas-fir beetle (D. pseudotsugae).

5. Control method recommended: Cut and burn or spray.

6. Estimated number of trees to be treated by land ownership: National Forest - 4,000 trees @ $12.00 per tree.

7. Estimated number of acres to be covered: National Forest - 2,000 acres.

8. Estimated costs: Control, F. Y. 1954 - $50,000.

9. Values at stake:

(a) Merchantable timber already killed and additional timber threatened as described under Sections IV and V of this report.

(b) Industry dependence:

Douglas-fir is the most heavily used timber species of the national forests in this region. The demand for Douglas-fir is increasing. As described under Section VI the timber cut report for calendar year 1951 shows that out of a total sawlog cut of 376 million board feet, the Douglas-fir cut was 98 million board feet. All seventeen of the region's national forests have mills operating in Douglas-fir sawtimber in varying amounts. It is one of the chief supports for many of the small circular mills.

The Coeur d'Alene mining industry in north Idaho is highly dependent on Douglas-fir for mine timbers. There is a less important but fairly heavy demand for poles, piling, posts and other minor products.

Remarks: This project proposed to undertake a control program in the most threatened and highest value Douglas-fir areas.

Study on Logging for Control

A demonstration study is needed in the techniques of logging for direct control. The detection, removal or treatment of infested timber prior to the emergence of the broods can be compared in importance to the removal or destruction of ribes plants in white pine blister rust control. The land manager needs additional facts and guidelines to serve him in aiming for control of the beetle. Such a study may also show that different types of cutting practices tend to influence the activity of the Douglas-fir beetle. Control may be interwoven with the silvicultural management of the Douglas-fir mature stands.